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ANALYSIS OF SULFUR DIOXIDE EXCESSES IN THE WIDOWS CREEK STEAM PLANT AREA DURING 1980

AIR RESOURCES PROGRAM

TENNESSEE VALLEY AUTHORITY
Office of Natural Resources
Air Resources Program

ANALYSIS OF SULFUR DIOXIDE EXCESSES IN THE WIDOWS CREEK STEAM PLANT AREA DURING 1980

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August 1981

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ANALYSIS OF SULFUR DIOXIDE EXCESSES IN THE WIDOWS CREEK STEAM PLANT AREA DURING 1980

SCOPE AND OBJECTIVES

During 1980, sulfur dioxide (SO_2) levels in excess of primary and secondary National Ambient Air Quality Standards (NAAQS)[1] were measured at several monitoring stations in the vicinity of Widows Creek Steam Plant. SO_2 concentrations exceeding the 24-hour primary standard of 0.14 ppm were measured on eight occasions at five different monitoring stations. Three violations of the primary standard occurred. SO_2 concentrations exceeding the 3-hour secondary standard of 0.50 ppm were measured on nine occasions at five different monitoring stations. Four violations of the secondary standard occurred.

Excess measurements at Widows Creek Steam Plant during 1980 are important because they occurred despite no significant changes in steam plant configuration but a significant reduction in SO_2 emissions compared with 1979.[2] With the exception of unit 7, the Widows Creek Steam Plant was generally in compliance with the final SO_2 emission standards established by the TVA Consent Decree[3]. Since unit 7 of the Widows Creek Steam Plant was not in compliance with the final SO_2 emission standards, measurement of ambient SO_2 excesses was not unexpected.

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[1] For sulfur dioxide, the primary standard (for protection of public health) is 0.14 parts per million (ppm) for a 24-hour average; the secondary standard (for protection of public welfare) is 0.50 ppm for a 3-hour average. These standards are not to be exceeded more than once per year.

[2] During 1979, weighted average annual SO_2 emissions were 3.2 lbs/10^6 Btu and during 1980, weighted average annual SO_2 emissions were 1.4 lbs/10^6 Btu.

[3] Unit 8 occasionally exceeded the interim emission standard due to a mechanical failure in the scrubber mechanism.

This report examines the physical and environmental circumstances associated with these excess measurements, documents the circumstances, and determines the sources which may have contributed to the excess measurements. Data bases used in this investigation included: TVA meteorological and air quality data from the Widows Creek monitoring network, National Weather Service (NWS) data, topographic maps, and Widows Creek plant operational data. This report presents and evaluates all available data and information related to the 1980 measurements.

PHYSICAL AND ENVIRONMENTAL FACTORS

This section discusses the relevant physical and environmental factors which include the: (1) topography in the Widows Creek Steam Plant vicinity, (2) ambient air quality monitoring data, (3) SO_2 emissions from sources with the potential to impact affected monitoring stations, and (4) meteorological factors.

TOPOGRAPHY IN THE WIDOWS CREEK STEAM PLANT VICINITY

Widows Creek Steam Plant is located on the Tennessee River in extreme northeast Alabama, approximately 8 km southwest of Bridgeport and 8 km north-northeast of Stevenson, Alabama.

In general, the terrain forms a valley approximately 10 km across with surrounding escarpments about 270 m high. The Tennessee river is located along the southeast edge of the valley with the steam plant located along the right bank (facing downstream), 191 m above sea level.[4] Along the left bank within 3 km of the plant, a steep escarpment (Sand Mountain) rises to approximately 265 m above steam plant grade. From the top of the escarpment, a generally flat plateau extends to the southeast for several kilometers. This escarpment lies along a generally straight line from southwest to northeast, with a single major cove breaking the line of the escarpment about 5 km east-northeast of the plant. To the northwest, the terrain also rises to heights of 265 m above plant grade (Cumberland Plateau) at distances of 7 km from the plant and beyond; however, the edge of the high terrain does not lie along a straight line as Sand Mountain.

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[4] For the remainder of this report, all elevation data will be with respect to Widows Creek Steam Plant elevation. That is, all elevations will be actual elevation above sea-level minus the Widows Creek elevation (191 m).

Figure 1 is a sketch of the significant topography in the Widows Creek Steam Plant vicinity.

AMBIENT AIR QUALITY MONITORING

TVA operates a network of 14 SO_2 monitors in the vicinity of Widows Creek Steam Plant (figure 1). SO_2 is continuously monitored coulometrically with a Philips PW-9700 ambient monitor.

Ambient SO_2 Excesses

During 1980, SO_2 concentrations in excess of the primary ambient air quality standard (0.14 ppm--24-hour average) were measured on eight occasions.

Date	Ending Time	Monitoring Station	24-hour Average SO_2 Concentration (ppm)
October 7, 1980	0900 CDT	11	0.166
October 7, 1980	1100 CDT	8	.196
October 10, 1980	0300 CDT	14	.145
November 1, 1980	1000 CST	9	.178
November 1, 1980	1100 CST	3	.151
December 15, 1980	0400 CST	8	.142
December 15, 1980	0400 CST	11	.172
December 15, 1980	0700 CST	14	.145

Also during 1980, SO_2 concentrations in excess of the secondary ambient air quality standard (0.50 ppm--3-hour average) were measured on nine occasions.

Date	Ending Time	Monitoring Station	3-hour Average SO_2 Concentration (ppm)
October 7, 1980	0800 CDT	11	0.597
October 7, 1980	1000 CDT	8	1.063
October 7, 1980	1100 CDT	11	.523
November 1, 1980	1000 CST	9	.693
November 1, 1980	1000 CST	3	.667
December 15, 1980	0100 CST	8	.687
December 15, 1980	0100 CST	14	.543
December 15, 1980	0200 CST	11	.587
December 15, 1980	0500 CST	11	.650

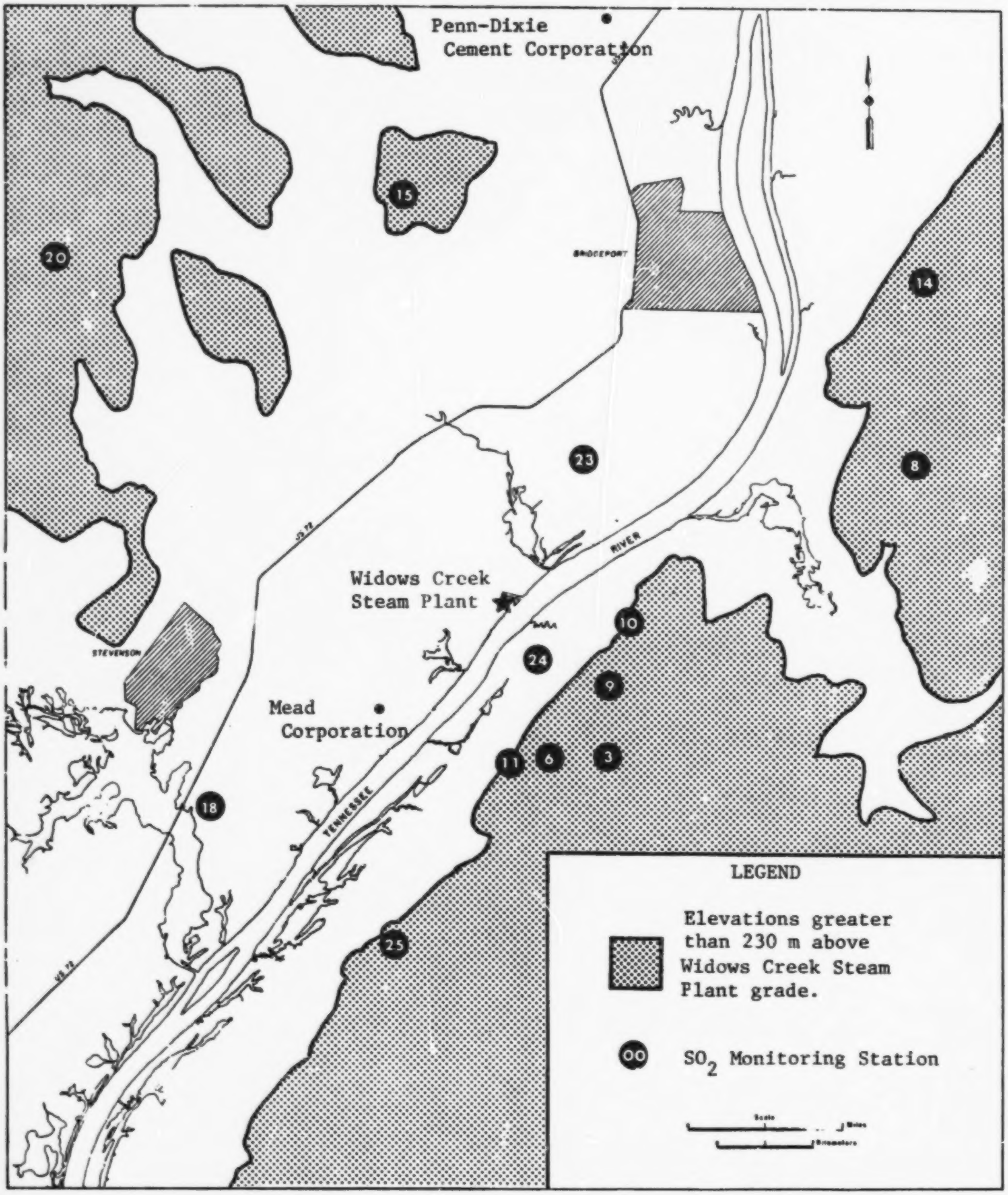
Penn-Dixie
Cement Corporation
BRIDGEPORT
15
20
14
23
8
RIVER
U.S. 72
Widows Creek
Steam Plant
10
24
9
STEVENSON
Mead
Corporation
11
6
3
18
TENNESSEE
25
LEGEND
Elevations greater than 230 m above Widows Creek Steam Plant grade.
00
SO2 Monitoring Station
Scale
Miles
Kilometers

Figure 1. Significant Topography in The Widows Creek Steam Plant Vicinity.

It must be noted that several excesses usually occurred simultaneously and can therefore be considered as a single incident. For the purposes of this report, the 1980 excesses will be grouped into four incidents.

Date	Station(s)	Number of Excesses 24-hour	Number of Excesses 3-hour
October 6-7, 1980	8, 11	2	3
October 9-10, 1980	14	1	0
October 31-November 1, 1980	3, 9	2	2
December 14-15, 1980	8, 11, 14	3	4

Complete listings of SO_2 concentrations for these periods are included in appendix A.

Station Descriptions

Station 3--Station 3 is located in a rural area 4.0 km southeast of the steam plant at an azimuth of 135°. The site is a pasture with a ground slope of approximately 5 percent from north to south, and a gravel private drive 1 m to the south. Within 200 m surrounding the site there is no heavy or light industry, housing is light, and land use is 20-percent forest, 15-percent agriculture, 50-percent pasture, and 15-percent other.[5] There are no trees or tall obstacles that do not meet the minimum distance criteria for monitoring at this site. This monitoring station meets the SLAMS[6] SO_2 monitor site selection criteria.

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[5] The area within 200 m is subjectively examined to determine if there are any extremely local sources of interference which might affect the monitor. Housing is defined as light for a rural area to heavy for a dense suburban area.

[6] SLAMS: State and Local Air Monitoring Station siting criteria. These criteria have been established as part of standardized air monitoring guidelines for monitor location, data collection and processing, and instrument calibration. 40 CFR Part 58. "Ambient Air Quality Surveillance."

Station 8--Station 8 is located in a rural area 8.9 km east-northeast of the steam plant at an azimuth of 69°. The site is a lawn with a ground slope of approximately 5 percent to the east, south, and west, and a paved road 15 m to the west. Within 200 m surrounding the site there is no heavy or light industry, housing is light, and land use is 50-percent forest, 5-percent agriculture, 15-percent pasture, 10-percent lawn, and 20-percent other. There are no trees or tall obstacles that do not meet the minimum distance criteria for monitoring at this site. This monitoring station meets the SLAMS SO_2 monitor site selection criteria.

Station 9--Station 9 is located in a rural area 3.5 km east-southeast of the steam plant at an azimuth of 118°. The site is a level pasture with a gravel private drive 2 m to the east. Within 200 m surrounding the site there is no heavy or light industry, housing is light, and land use is 10-percent forest, 15-percent agriculture, 55-percent pasture, 5-percent orchard, and 15-percent other. There are no trees or tall obstacles that do not meet the minimum distance criteria for monitoring of this site. This monitoring station meets the SLAMS SO_2 monitor site selection criteria.

Station 11--Station 11 is located in a rural area 3.2 km south-southeast of the steam plant at an azimuth of 166°. The site is a pasture near the escarpment of Sand Mountain with a ground slope of approximately 5 percent to the east and south, and a gravel private drive 1 m to the north. The top of the escarpment is about 30-50 m to the southwest-northeast. Within 200 m surrounding the site there is no heavy or light industry, housing is light, and land use is 30-percent forest, 50-percent pasture, and 20-percent other. There are no trees, tall obstacles, roads (paved or unpaved), or agricultural activities that do not meet the minimum distance criteria for monitoring at this site. This monitoring station meets the SLAMS SO_2 monitor site selection criteria.

Station 14--Station 14 is located in a rural area 10.6 km northeast of the steam plant at an azimuth of 54°. The site is a pasture with a ground slope of approximately 5 percent from west to east, and a paved road 30 m to the east. Within 200 m surrounding the site there is no heavy or light industry, housing is light, and land use is 30-percent forest, 2-percent agriculture, 58-percent pasture, and 10-percent other. There are no trees or tall obstacles that do not meet the minimum distance criteria for monitoring at this site. This monitoring station meets the SLAMS SO_2 monitor site selection criteria.

SURVEY OF SO_2 EMISSION SOURCES

Several area and point sources of SO_2 exist which could conceivably impact the Widows Creek monitoring network. The major point sources of SO_2 are listed in appendix B.

Widows Creek Steam Plant

Widows Creek Steam Plant consists of eight coal-fired units which exhaust flue gases through one 305-m and two 151-m stacks. It has a rated capacity of 1980 MW and is the largest emitter of SO_2 in the vicinity with allowable emissions of 3010 g/sec. Appendix B contains information related to plant operations and actual SO_2 emissions. TVA recognized the possibility of excessive ambient SO_2 concentrations resulting from steam plant SO_2 emissions, and therefore operated an intermittent SO_2 emission limitation program to minimize high ground-level SO_2 concentrations during 1980.

Other Nearby Point Sources

Only two other major SO_2 point sources exist in the vicinity. Mead Corporation, which is located 3.7 km southwest of Widows Creek Steam Plant, has estimated SO_2 emissions of 54 g/sec. Penn-Dixie Cement Corporation, which is located 13 km north of Widows Creek Steam Plant, has estimated SO_2 emissions of 56 g/sec.

Nearby Area Sources

Area sources of SO_2 include residential heating, commercial/institutional fuel usage (primarily heating), and open burning. In general, these emissions are population related and result from combustion of sulfur containing fuels. Major industrial point sources are not included when determining area source emissions. It is estimated that SO_2 emissions from the cities of Stevenson and Bridgeport are approximately 3 g/sec each.

Major Distant Sources

Numerous point and area sources are located in or near Chattanooga and South Pittsburg, Tennessee; and Huntsville and Scottsboro, Alabama. However, these sources are generally too distant and too small to influence the Widows Creek vicinity.

METEOROLOGICAL FACTORS

This section summarizes meteorological conditions related to the 1980 Widows Creek SO_2 excesses in general terms only. A more detailed discussion of meteorology conditions is included in appendix C. The meteorological conditions for the excess periods can be divided into two general categories based on probable plume characteristics--inversion breakup and fanning.

Inversion Breakup

Three excess periods fall into this category--October 6-7, October 9-10, and October 31-November 1, 1980. In each of these cases, a surface-based inversion extended more than 300 m above the surface. The plume was embedded in this inversion layer and remained fairly compact during the predawn hours. As solar heating increased, the lower layers were heated and very unstable mixing conditions occurred through a progressively deeper layer. When the layer became deep enough to reach the plume (at about 0700-0900), thermal turbulence brought portions of the plume of the ground, resulting in higher SO_2 concentrations at ground level.

Fanning

One excess period falls into this category--December 14-15, 1980. In this case, a surface-based inversion extended more than 350 m above the surface. The plume was embedded in this inversion and remained compact throughout the excess period. Terrain in the vicinity of the steam plant is high enough that the plume could have impacted directly at ground level when winds were from the proper direction to transport the source plume towards the high terrain.

NATURE OF EXCESSES

There are several forms an excess might take. An excess at one site might represent the maximum elevated concentrations observed at all or a number of sites in a network. Conversely, it could be an isolated event which affects one monitor, but not any of the others. The persistence of high concentrations during an excess must also be considered. The nature of an excess--spatial distribution and persistence of high concentrations--is important when attempting to identify sources which might be responsible.

All of the excesses occurred at monitors on high terrain, while winds were generally blowing from the valley. Effects of plume rise above the surface were somewhat negated by the differences in elevation between sources in the valley and monitoring stations. The high peak concentrations (greater than 1.50 ppm) measured in most cases are indicative of concentrations relatively close to a large source plume centerline (within 400 m).

Two of the excess incidents (October 9-10, 1980 and October 31-November 1, 1980) were relatively isolated cases. The relative isolation of these excesses--indicated by high concentrations at a single monitor or several closely spaced monitors--is characteristic of a relatively narrow plume. Therefore, it is probable that these excesses were due to emissions from a single point source rather than several point or area sources.

Two of the excess incidents (October 6-7, 1980 and December 14-15, 1980) were widespread cases. The widespread nature of these excesses--indicated by high concentrations at two or more widely spaced monitors--is characteristic of multiple emission sources or unusual dispersion characteristics from a single source. In this case, effects of nearby terrain on Widows Creek plume dispersion may account for the widespread nature of the excesses.

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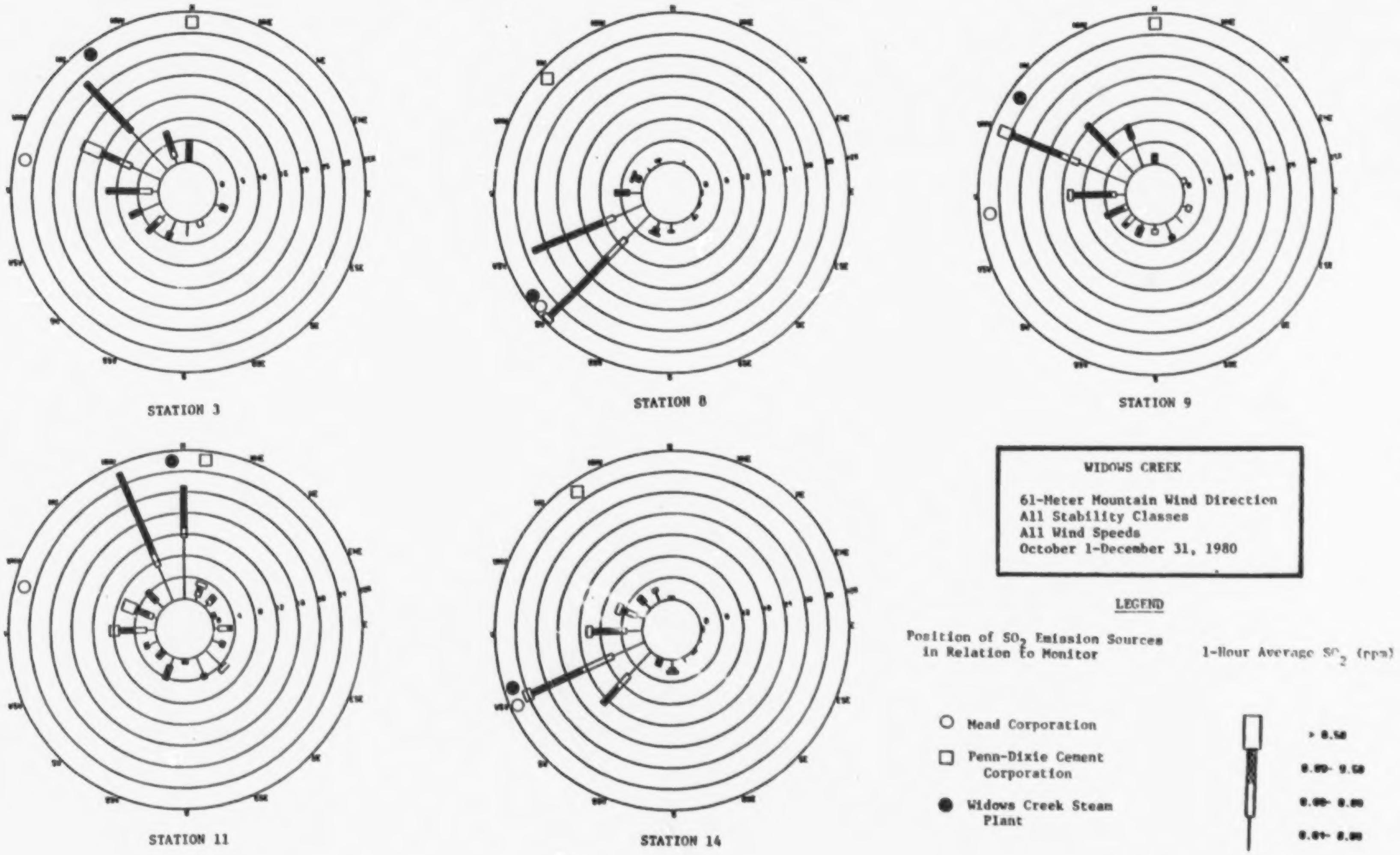
ASSESSMENT OF PROBABLE CONTRIBUTORS

In the previous section, topographic, meteorological, and other factors important to determining the cause of the excesses were examined. In this section, sources which might have contributed to the excesses and the probable impact of each are discussed.

It is useful to examine the long-term relationship between SO_2 concentrations and wind directions to see if any particular condition is present during elevated SO_2 levels. A convenient method of illustrating this relationship is a pollution rose, which is a graphical display of the frequency that various combinations of wind direction and pollutant levels occur. Figure 2 contains plots of these frequencies for each of the five stations (3, 8, 9, 11, and 14) discussed in this report for the 3-month period (October 1-December 31, 1980) when the high SO_2 concentrations occurred. In every case, Widows Creek Steam Plant is the predominant source of SO_2 (based on most frequent wind direction). However, based on magnitude of SO_2 concentrations, Mead Corporation appears to be a major SO_2 source. This is not as important a factor as it appears for two reasons. First, Mead Corporation is a relatively small SO_2 emission source and is generally not capable of causing extremely high concentrations (greater than 1.00 ppm) beyond a short distance. Second, the terrain near Widows Creek Steam Plant tends to distort plume trajectories. Therefore, pollution roses, based on wind direction measurements at a single site, may not represent actual conditions. For example, a plume may be initially emitted in the valley, be influenced by those winds, and then rise above the valley into an entirely different wind flow.



STATION 3

STATION 8

STATION 9

STATION 11

STATION 14

WIDOWS CREEK

61-Meter Mountain Wind Direction
All Stability Classes
All Wind Speeds
October 1-December 31, 1980

Figure 2. POLLUTION ROSES - WIDOWS CREEK MONITORING STATIONS

POTENTIAL SOURCES

The following sources were identified as having the potential to cause or contribute to the excess SO_2 concentrations measured during 1979.

1. Widows Creek Steam Plant.
2. Mead Corporation.
3. Penn-Dixie Cement Corporation.
4. Domestic home heating.

To determine the impact of each of these sources, estimates of ground-level SO_2 concentrations were made for each source (appendix D). Actual or probable SO_2 emissions and meteorological data were used whenever possible. When an input parameter was not known for certain, a conservative parameter value was selected so that an overestimate rather than an underestimate would result.

PROBABLE IMPACTS OF POTENTIAL SOURCES

A number of situations have been devised which could explain the high SO_2 concentrations measured by the Widows Creek monitoring network. In this section, an assessment is made of each situation given the conditions which characterized the incidents.

Widows Creek Steam Plant

TVA's Widows Creek Steam Plant is the largest SO_2 source in the vicinity with average emissions of over 2700 g/sec during the periods of high SO_2 concentrations. Although Widows Creek Steam Plant was generally in compliance with interim emission standards, all units were not in compliance with final SO_2 emission standards established under the TVA Consent Decree at the time high SO_2 concentrations were measured. Thus, excesses of ambient standards were not unexpected. Calculations indicate that unit 7 was particularly capable of causing standards to be exceeded under some meteorological conditions given the interim SO_2 emission standards that applied during 1980.

Mead Corporation

Mead Corporation is a far smaller source than Widows Creek Steam Plant; however, it is close enough to monitoring stations 3, 9, and 11 to make significant contributions under certain conditions. Calculations indicate the Mead Corporation contributions would generally be less than 0.40 ppm in any case, except at station 11; however, enough SO_2 might be contributed to already existing SO_2 concentrations to reach excess levels. Such a combination will be short-lived since winds capable of causing Mead Corporation to impact one of the affected monitors will tend to exclude other sources.

Penn-Dixie Cement Corporation

Penn-Dixie Cement Corporation emits approximately as much SO_2 as does Mead Corporation. However, Penn-Dixie is distant enough from the bulk of the monitoring network that it probably affected only the northern-most monitoring stations (stations 8 and 14 in this case). Calculations indicate that contributions will generally be only slightly above background levels (<0.06 ppm). Therefore, Penn-Dixie Cement Corporation can probably be excluded as a significant contributor to the excesses observed, although contributions near background levels were possible.

Domestic Heat Heating

On cold nights, coal-burning for home heating can emit significant quantities of SO_2, at least on a local scale. The maximum capacity of a small hand-fired coal furnace is about 150 kilograms of coal per day. If the average sulfur content of the coal is assumed to be 3 percent, the emission rate per furnace would be about 0.1 g/sec. Under calm stable conditions (1 m/sec, stability class F), this is sufficient to produce concentrations of over 1.500 ppm at 100 m distance. However, the effects of local domestic heating will only be significant during cold nights (<20°C) and then only for short distances (beyond 100 m, SO_2 concentrations drop off drastically).

Domestic home heating was probably not a major influence in the excesses measured at Widows Creek during 1980. Housing is sparse in the vicnity of all affected monitors (characteristic of a rural agricultural area), so no more than a few houses, only some of which might burn coal, are located close enough to affect a monitor.

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ANALYSIS OF INDIVIDUAL EXCESSES

In examining each of the individual incidents, some basic circumstances apply to every case.

1. The plume from the Widows Creek Steam Plant 305-m stack (units 1-6) generally has a high enough effective plume height so that SO_2 emissions from units 1-6 are normally insignificant at ground level. However, under some circumstances, when upward plume dispersion is restricted (inversion breakup or limited layer mixing), ground-level concentrations, resulting from SO_2 emissions from the 305-m stack, can reach 0.30 ppm. Therefore, even though units 1-6 are not likely to cause an excess, emissions from the 305-m stack can combine with emissions from other sources to cause an excess.
2. Mead Corporation and Penn-Dixie Cement Corporation emit very small quantities of SO_2 compared to Widows Creek Steam Plant (approximately 2 percent of the steam plant emissions). Also, these sources have effective plume heights generally below the height of the escarpment. Therefore, these plumes normally remain in the Valley and do not impact monitors on the escarpment.

October 6-7, 1980

During the period 0400-1100 CDT on October 7, 1980 Mead Corporation and Penn-Dixie Cement Corporation plumes remained in the Valley and were transported toward the southwest, away from monitors 8 and 11 (based on Valley wind directions at 61 m). The plume from units 1-6 was transported between monitors 8 and 11 and remained high enough above the surface so that its contribution to ground-level concentrations was limited. The plume from units 7-8 (with 96 percent of the SO_2 in the plume being emitted by unit 7) was emitted from the stack in the Valley, but rose above the Valley. This resulted in the plume being transported towards the southwest during the initial stages of plume rise, and then being transported towards the southeast until about 0900 CDT or towards the northeast after about 0900 CDT. This produced high SO_2 concentrations at station 11 during 0400-0900 CDT, followed by high SO_2 concentrations at station 8 during 0800-1100 CDT.

October 9-10, 1980

Winds, at all levels below 700 m above plant grade, were from the southwest quadrant during the period when high SO_2 concentrations were being measured (0200 CDT on October 9 through 0700 CDT on October 10, 1980). The plume from units 1-6 was emitted well above the escarpment and did not mix to the surface. The Penn-Dixie Cement Corporation plume was transported towards the northeast, away from monitor 14, while the plumes from Mead Corporation and Widows Creek Steam Plant were transported towards the vicinity of station 14. The Mead Corporation SO_2 emissions were generally too low to be significant with estimated concentrations at station 14 less than 0.130 ppm. This is too low to account for at least six hours during the excess period, when observed SO_2 concentrations were above that value. The plume from unit 7 (unit 8 was off-line during the high concentration period) was transported in the direction of monitor 14, where it was close enough to the ground (due to terrain changes) to cause the bulk of the SO_2 concentrations observed.

October 31-November 1, 1980

During the period 0800-1100 CDT on November 1, 1980, Mead Corporation and Penn-Dixie Cement Corporation plumes remained in the Valley and were transported to the northeast (based on Valley wind directions at

61 m). The plume from units 1-6 was transported over the affected stations (monitors 3 and 9), but remained high enough above the surface so that its contribution to ground-level concentrations was limited. The plume from units 7-8 (with 75 percent of SO_2 in the plume being emitted from unit 7) was emitted from the stack in the Valley, but rose above the Valley. This resulted in the plume being transported towards the northeast during the initial stages of plume rise, and then being transported towards the southeast. This trajectory combined with inversion breakup conditions to produce high SO_2 concentrations at both stations 3 and 9.

December 14-15, 1980

During the period 2300 CDT on December 14 through 0800 CDT on December 15, 1980, Mead Corporation and Penn-Dixie Cement Corporation plumes remained in the Valley and were transported in the northeast, away from the affected monitors (based on Valley wind directions at 61 m). The plume from units 1-6 was emitted well above the escarpment and did not mix to the surface. During the period just prior to the highest SO_2 concentrations (1900-2000 CST), the unit 7 plume (unit 8 was off-line) was transported to just northwest of stations 8 and 14. As the plume rose above the Valley wind floor, winds from the northwest transported the plume towards stations 8 and 14 which measured high SO_2 concentrations.

Just after stations 8 and 14 began measuring high SO_2 concentrations, these same winds from the northwest transported SO_2 emissions directly towards monitor 11, resulting in high SO_2 concentrations at that station.

Summary

In each of these excesses, the plume from Widows Creek Steam Plant units 7-8 was probably responsible for the high ground-level SO_2 concentrations.

Since unit 8 emissions were reduced by the SO_2 scrubber, unit 7 emissions comprised the bulk (78-100 percent) of the SO_2 in the plume. At the time of these excesses, unit 7 was in compliance with the interim SO_2 emission standard (6.5 lb/10^6 Btu) but not in compliance with the final SO_2 emission standard (0.9 lb/10^6 Btu). Had unit 7 been in compliance with this final emission standard, SO_2 emissions from units 7 and 8 would have been reduced by 68-86 percent. This would probably have been sufficient to reduce all excess measurements to nonexcess levels.

CONCLUSIONS

1. Widows Creek Steam Plant was probably the primary contributor to all SO_2 excesses measured during 1980 by the Widows Creek air monitoring network.
2. SO_2 emissions from Widows Creek unit 7 (mixed with the much smaller unit 8 SO_2 emissions) were probably responsible for the excesses. Due to much higher plume rise, the plume from units 1-6 was not a significant contributor to the excesses.
3. Mead Corporation, Penn-Dixie Cement Corporation, and domestic home heating may have contributed SO_2 concentrations above background level in some cases, but were neither large enough or persistent enough to be the primary contributors in any case.

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APPENDIXES

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Appendix A

Ambient Air Quality Data

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Table A-1

WIDOWS CREEK STEAM PLANT
AMBIENT SO_2 MONITORING NETWORK - MONITOR LOCATIONS

Monitor No.	Direction From Plant (°)	Distance From Plant (km)	Elevation above Plant Grade (m)
3	135	4.0	251
6	158	3.5	267
8	69	8.9	284
9	118	3.5	266
10	102	3.2	266
11	166	3.2	287
14	54	10.6	287
15	348	8.7	272
17	272	30.4	353
18	233	7.4	23
20	316	10.5	254
23	28	4.3	17
24	139	1.6	4
25	192	7.3	261

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TABLE A-2

MEASURED AMBIENT SO_2 CONCENTRATIONS
WIDOWS CREEK STEAM PLANT

October 6, 1980
October 7, 1980

WIDOWS CREEK STEAM PLANT 14-M
STA 70 11
0F1280 10/06/80 (MON)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

11-26-80

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	PRLV WD 61M 01ED	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CDT)
0100	18	9.9			.010	.010			0100
0200	35	11.5							0200
0300	42	5.4							0300
0400	24	10.4							0400
0500	36	9.0							0500
0600	32	10.2							0600
0700	33	9.6	.010						0700
0800	43	10.3	.020	.010	.010		.010	.010	0800
0900	34	9.4	.020	.010	.010	.010	.010	.010	0900
1000	65	10.9	.020	.010			.020	.010	1000
1100	29	8.1	.020	.010			.010	.010	1100
1200	30	7.1	.020	.010					1200
1300	351	6.4	.020	.010					1300
1400	NF	NF	NF	NF	NF	NF	NF	NF	1400
1500	15	10.1	.020	.010					1500
1600	44	8.2	.020	.010					1600
1700	53	5.7	.020	.010					1700
1800	37	2.6	.020	.010					1800
1900	216	3.4	.020	.010					1900
2000	111	3.2	.020	.010					2000
2100	52	3.6	.020	.010			.010		2100
2200	26	4.3	.020	.010					2200
2300	61	5.2	.010	.010			.010		2300
2400	46	5.1	.010	.010	.010		.010		2400
AVRG	57	7.5		.007				.001	AVRG

PERD ENDG (CDT)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CDT)
0100									0100
0200									0200
0300									0300
0400									0400
0500									0500
0600									0600
0700									0700
0800	.010	.010							0800
0900	.010	.010							0900
1000	.010	.010	.070	.010	.010	.010	.010	.010	1000
1100	.010	.010			.010	.010	.020	.010	1100
1200	.010	.010			.010	.010	.010		1200
1300	.010						.030	.020	1300
1400	NF	NF	NF	NF	NF	NF	NF	NF	1400
1500							.020	.010	1500
1600							.020	.010	1600
1700							.020	.010	1700
1800							.010	.010	1800
1900							.010	.010	1900
2000	.010								2000
2100									2100
2200	.010	.010							2200
2300									2300
2400									2400
AVRG		.002				.001		.003	AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
BC1280 10/CC/80 (NCVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AR	SO2 AVG STA18 (053) BR	PERD ENDG (CDT)
0100	.010	.010	.010	.010	.010				0100
0200							.010		0200
0300									0300
0400	.010				.010				0400
0500	.010	.010			.010	.010			0500
0600	.010	.01C	.010	.010	.010				0600
0700	.010	.010	.010	.010	.010	.010			0700
0800	.010	.010	.020	.010	.020	.010			0800
0900	.020	.010	.020	.010	.020	.010	.010	.010	0900
1000	.020	.010	.020	.010	.020	.010	.020	.010	1000
1100	.020	.010	.010	.010	.020	.010	.050	.030	1100
1200	.020	.010	.020	.010	.070	.020	.040	.030	1200
1300	.010	.010	.180	.030	.120	.060	.080	.030	1300
1400	NF	NF	NF	NF	NF	NF	NF	NF	1400
1500	.010				.130	.060	.010	.010	1500
1600	.010				.190	.090	.060	.030	1600
1700	.010				.060	.030	.070	.050	1700
1800	.010				.040	.020	.080	.060	1800
1900					.020	.010	.020	.010	1900
2000					IM	IM	.020	.010	2000
2100					.010	.010	.010		2100
2200	.010	.010	.020	.010	.010	.010			2200
2300	.010	.010			.020	.010			2300
2400	.010				.010	.010			2400
AVRG		.005		.005		.017		.012	AVRG

PERD ENDG (CDT)	SO2 PEAK STA17 (272) AQ	SO2 AVG STA17 (092) BQ	SO2 PEAK STA15 (348) AO	SO2 AVG STA15 (168) BO	SO2 PEAK STA20 (3C8) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CDT)
0100			.010	.010	.010		0100
0200	.010		.020	.010	.020	.010	0200
0300	.010	.010	.020	.010	.020	.010	0300
0400	.010	.010	.020	.010	.020	.010	0400
0500	.010	.C10	.020	.010	.020	.010	0500
0600	.010	.01C	.020	.010	.020	.010	0600
0700	.010	.010	.020	.010	.020	.020	0700
0800	.020	.020	.020	.020	.020	.020	0800
0900	.020	.020	.020	.020	.020	.020	0900
1000	.020	.010	IM	IM	.020	.010	1000
1100	.010	.010	IM	IM	.020	.010	1100
1200	.010	.C1C	IM	IM	.020	.010	1200
1300	.010	.010	LR	LR	.020	.010	1300
1400	NF	NF	NF	NF	NF	NF	1400
1500	.010	.010	LR	LR	.020	.010	1500
1600	.010		LR	LR	.020	.010	1600
1700			LR	LR	.020	.010	1700
1800			LR	LR	.020	.010	1800
1900			LR	LR	.020	.010	1900
2000			LR	LR	.010	.010	2000
2100			LR	LR	.C10	.010	2100
2200			LR	LR	.010	.010	2200
2300	.010		LR	LR	.010	.010	2300
2400	.010	.C10	LR	LK	.020	.010	2400
AVRG		.CC6		LR		.010	AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
1281 10/07/80 (NO)A)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	PREV WD 61M 01BD	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CDT)
0100	20	5.0	.010				.010		0100
0200	29	3.8							0200
0300	83	2.2							0300
0400	214	1.0							0400
0500	292	3.4							0500
0600	327	1.3							0600
0700	200	1.1			.010		.040	.010	0700
0800	285	1.5			.020		.210	.090	0800
0900	281	2.6	.020	.010	.110	.020	1.940	.840	0900
1000	254	5.1	.010		.440	.100	3.870	2.260	1000
1100	255	7.1	.260	.100	.150	.060	1.150	.380	1100
1200	257	6.9	.120	.060	.020	.010	.290	.060	1200
1300	247	5.2	.350	.150	.030	.010	.040	.010	1300
1400	255	4.4	.390	.150	.050	.030	.020	.020	1400
1500	247	4.8	.310	.110	.050	.030	.040	.020	1500
1600	245	6.2	.110	.040	.020	.010	.040	.010	1600
1700	227	5.7	.100	.020	.090	.050	.100	.070	1700
1800	231	7.1	.020	.010	.100	.070	.070	.050	1800
1900	233	9.4	.020	.010	.050	.020	.020	.010	1900
2000	220	11.7	.020	.010			.010		2000
2100	226	12.4	.010	.010			.010	.010	2100
2200	240	11.4	.010		.240	.120	.080	.020	2200
2300	241	11.2	.010		.230	.190	.300	.190	2300
2400	234	13.5			.740	.180	.250	.050	2400
AVRG	222	6.0		.028		.037		.170	AVRG

PERD ENDG (CDT)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) EJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CDT)
0100									0100
0200									0200
0300									0300
0400									0400
0500									0500
0600									0600
0700	.060	.010	.060	.020					0700
0800	.320	.130	.320	.140					0800
0900	1.110	.500	1.420	.710	.510	.270			0900
1000	2.140	.700	1.020	.320	.190	.040	.010		1000
1100	.080	.030					.070	.040	1100
1200	.060						.050	.030	1200
1300	.450	.070	.100	.020			.010		1300
1400	.060	.010	.010				.010		1400
1500	.070	.020	.030				.020	.010	1500
1600	.040	.010					.020	.010	1600
1700							.020	.010	1700
1800			.010	.010					1800
1900									1900
2000	.010								2000
2100	.010		.010						2100
2200									2200
2300	.010	.010							2300
2400									2400
AVRG		.042		.050		.012		.004	AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
80:281 10/07/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AR	SO2 AVG STA18 (053) BR	PERD ENDG (CDT)
0100	.010				.010	.010			0100
0200									0200
0300									0300
0400	.010								0400
0500			1.650	.530	.030	.010			0500
0600	.450	.100	1.070	.410	.140	.050	.010		0600
0700	.560	.220	1.510	.320	.570	.200			0700
0800	.550	.410	1.760	1.060	.380	.230			0800
0900	.950	.440	3.100	1.420	.240	.080			0900
1000	.170	.050	.890	.140	.040	.020	.020	.010	1000
1100			.020	.010	.010		.080	.050	1100
1200	.010		.020	.010	.020	.010	.090	.050	1200
1300	.010		IM	IM			.020	.020	1300
1400	.010		IM	IM			.010	.010	1400
1500			.020				.010		1500
1600							.020	.010	1600
1700	.010	.010	.020	.010	.010		.020	.010	1700
1800	.020	.010	.020	.010	.010	.010	.020	.010	1800
1900	.010	.010	.020	.010	.010	.010	.020	.010	1900
2000	.020	.010	.020	.010	.010	.010	.020	.010	2000
2100	.010	.010	.020	.010	.010	.010	.010	.010	2100
2200	.010	.010	.020	.010	.010	.010	.010		2200
2300	.010	.010	.020	.010	.010	.010	.010		2300
2400	.010	.010	.010	.010	.010				2400
AVRG		.054		.180		.027		.008	AVRG

PERD ENDG (CDT)	SO2 PEAK STA17 (272) AQ	SO2 AVG STA17 (092) BQ	SO2 PEAK STA15 (348) AO	SO2 AVG STA15 (168) BO	SO2 PEAK STA20 (308) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CDT)
0100	LR	LR	LR	LR	.020	.010	0100
0200	LR	LR	LR	LR			0200
0300	LR	LR	LR	LR			0300
0400	LR	LR	LR	LR			0400
0500	LR	LR	LR	LR			0500
0600	LR	LR	LR	LR	.020		0600
0700	LR	LR	LR	LR	.050	.030	0700
0800	LR	LR	LR	LR	.050	.020	0800
0900	LR	LR	LR	LR	.020		0900
1000	LR	LR	IM	IM			1000
1100	LR	LR	IM	IM	.010		1100
1200	LR	LR			.010	.010	1200
1300	LR	LR			.020	.010	1300
1400	LR	LR			.010	.010	1400
1500	LR	LR			.020	.010	1500
1600	LR	LR			.020	.010	1600
1700	LR	LR			.020	.010	1700
1800	LR	LR			.020	.010	1800
1900	LR	LR			.020	.010	1900
2000	LR	LR			.020	.010	2000
2100	LR	LR			.020	.010	2100
2200	LR	LR			.020	.010	2200
2300	LR	LR			.020	.020	2300
2400	LR	LR			.020	.010	2400
AVRG		LR				.008	AVRG

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BEST DOCUMENT AVAILABLE

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TABLE A-3

MEASURED AMBIENT SO_2 CONCENTRATIONS
WIDOWS CREEK STEAM PLANT

October 9, 1980
October 10, 1980

WIDOWS CREEK STEAM PLANT   TENNESSEE VALLEY AUTHORITY   PRINT-DATE 11/22/80
STA 76 11   AMBIENT AIR CONCENTRATIONS (PPM)   VALIDATED
801283   10/09/80 (NOVA)

PERD ENDG (CDT)	PWR V WD 61M 01B0	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CDT)
0100	240	10.8			.170	.050	.020	.010	0100
0200	243	9.4			.270	.140	.020	.010	0200
0300	240	9.3			.300	.210	.120	.070	0300
0400	277	5.7			.190	.130	.090	.040	0400
0500	267	3.2			.190	.110	.020	.020	0500
0600	238	3.7			.050	.020	.060	.020	0600
0700	230	6.1			.030	.020	.010	.010	0700
0800	224	5.9			.020	.010	.010		0800
0900	218	4.8			.060	.010	.010		0900
1000	237	7.7			.480	.110	.010	.010	1000
1100	238	9.5	.020		.820	.500	.010	.010	1100
1200	228	8.8	.020	.010	.310	.100	.080	.020	1200
1300	250	6.9	.270	.030	.270	.110	.140	.080	1300
1400	218	6.1	.060	.020	.310	.180	.190	.070	1400
1500	222	7.7	.150	.050	.330	.120	.200	.080	1500
1600	230	7.4	.140	.030	.180	.110	.110	.050	1600
1700	223	7.2	.010		.150	.080	.120	.040	1700
1800	192	7.1	.010	.010	.020		.010		1800
1900	199	9.5	.010				.010	.010	1900
2000	211	10.3	.010				.030	.010	2000
2100	223	11.0	.010				.010	.010	2100
2200	226	12.8	.010				.010	.010	2200
2300	230	12.8	.010		.610	.300	.010	.010	2300
2400	227	10.9	.010		.740	.320	.010	.010	2400
AVRG	230	8.1		.006		.109		.025	AVRG

PERD ENDG (CDT)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CDT)
0100	.010	.010	.010				.010		0100
0200									0200
0300									0300
0400	.010								0400
0500									0500
0600									0600
0700	.020				.010				0700
0800	.020								0800
0900									0900
1000									1000
1100									1100
1200									1200
1300			.010		.010	.010	.040	.020	1300
1400			.010	.010			.020	.020	1400
1500			.010	.010			.020	.010	1500
1600			.010	.010			.010	.010	1600
1700			.010	.010	.010	.010	.010	.010	1700
1800			.010	.010	.020	.010	.010	.010	1800
1900			.010	.010	.010	.010	.010	.010	1900
2000					.010	.010	.010	.010	2000
2100			.010		.020	.010	.010		2100
2200			.010	.010	.020	.010	.010		2200
2300			.010	.010	.010	.010	.010		2300
2400			.010	.010					2400
AVRG				.003		.003		.004	AVRG

BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 7o 11
BC1283 10/C9/80 (ADVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AK	SO2 AVG STA18 (053) BR	PERD ENDG (CDT)
0100					.010	.010	.010	.010	0100
0200									0200
0300									0300
0400									C400
0500									0500
0600									0600
0700									0700
0800					.020				0800
0900									0900
1000					.010				1000
1100									1100
1200									1200
1300									1300
1400									1400
1500									1500
1600	.010								1600
1700									1700
1800									1800
1900									1900
2000	.010								2000
2100									2100
2200									2200
2300									2300
2400									2400
AVRG									AVRG

PERD ENDG (CDT)	SO2 PEAK STA17 (272) AQ	SO2 AVG STA17 (C92) BQ	SO2 PEAK STA15 (348) AU	SO2 AVG STA15 (168) BO	SO2 PEAK STA20 (308) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CDT)
0100							0100
0200					.010		0200
0300					.010		0300
0400					.010	.010	0400
0500					.010		0500
0600					.010		0600
0700					.010		0700
0800							0800
0900					.010		0900
1000					.010		1000
1100					.010		1100
1200							1200
1300			.010				1300
1400			.010		.010		1400
1500			.010		.010	.010	1500
1600					.010		1600
1700					.010	.010	1700
1800					.010	.010	1800
1900			IM	IM	.010	.010	1900
2000			.010		.010	.010	2000
2100					.010	.010	2100
2200					.010	.010	2200
2300					.010	.010	2300
2400					.010	.010	2400
AVRG						.004	AVRG

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BEST DOCUMENT AVAILABLE

AV-U

WIDOWS CREEK STEAM PLANT
STA 76 11
80284 10/10/80 (NCVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	PREV WD 61M 016L	WIND SPEED 61M 01EC	SO2 PEAK STA23 (028) AH	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CDT)
0100	230	12.0			.060	.020	.010	.010	0100
0200	234	12.3			.880	.610			0200
0300	235	11.2			1.190	.610			0300
0400	232	10.0			.300	.100	.010		0400
0500	240	10.3			.480	.180	.010		0500
0600	240	10.1			.420	.340	.100	.060	0600
0700	240	9.3			.520	.250	.060	.020	0700
0800	266	5.5			.110	.040	.190	.020	0800
0900	234	2.8			.190	.130	IM	IM	0900
1000	249	3.8			.320	.150	NE	NE	1000
1100	260	4.9	.020		.190	.050	.440	.090	1100
1200	260	6.0	.140	.020	.210	.060	.190	.090	1200
1300	NF	NF	NF	NF	NF	NF	NF	NF	1300
1400	261	6.1	.130	.030	.080	.030	.120	.050	1400
1500	237	9.1	.220	.030	.120	.050	.140	.050	1500
1600	240	11.3			.110	.030	.050	.010	1600
1700	239	10.4	.010		.020		.020		1700
1800	230	9.3	.010				.030	.010	1800
1900	229	11.3	.010		.010	.010			1900
2000	229	11.3	.010		.060	.020			2000
2100	228	11.6	.010	.010	.450	.170			2100
2200	226	12.4	.010		.460	.220			2200
2300	225	11.6	.010		.230	.080	.010		2300
2400	230	11.7			.270	.160	.020	.010	2400
AVRG	239	9.4		.003		.144		.020	AVRG

PERD ENDG (CDT)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CDT)
0100			.010	.010					0100
0200									0200
0300									0300
0400									0400
0500			.020						0500
0600									0600
0700									0700
0800									0800
0900									0900
1000									1000
1100									1100
1200							.010		1200
1300	NF	NF	NF	NF	NF	NF	.020	.010	1300
1400							.010	.010	1400
1500	.010						.010	.010	1500
1600							.010		1600
1700							.010		1700
1800							.010		1800
1900	.010						.010		1900
2000	.010						.010		2000
2100							.010		2100
2200									2200
2300							.010		2300
2400									2400
AVRG									AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
801284 10/10/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/22/80
VALIDATED

PERD ENDG (CDT)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AR	SO2 AVG STA18 (053) BR	PERD ENDG (CDT)
0100									0100
0200							.010	.010	0200
0300					.010		.010		0300
0400					.010				0400
0500					.010				0500
0600					.010		.010		0600
0700					.010	.010			0700
0800					.020	.010			0800
0900					.020	.010	.010		0900
1000					.020	.010	.010		1000
1100					.020	.010	.020	.010	1100
1200					.010	.010	.010	.010	1200
1300	NF	NF	NF	NF	NF	NF	NF	NF	1300
1400					.010		.020	.010	1400
1500	.010				.010		.020	.010	1500
1600					.010	.010	.010	.010	1600
1700					.010	.010	.010	.010	1700
1800	.010				.010	.010	.010	.010	1800
1900					.010	.010	.010	.010	1900
2000	.010				.020	.010	.010	.010	2000
2100	.010				.010	.010	.020	.010	2100
2200					.010		.010	.010	2200
2300					.010	.010	.010	.010	2300
2400					.010	.010	.010	.010	2400
AVRG						.006		.006	AVRG

PERD ENDG (CDT)	SO2 PEAK STA17 (272) AC	SO2 AVG STA17 (092) BC	SO2 PEAK STA15 (348) AO	SO2 AVG STA15 (168) BO	SO2 PEAK STA20 (308) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CDT)
0100							0100
0200							0200
0300							0300
0400					.010		0400
0500					.010		0500
0600					.010		0600
0700					.010		0700
0800					.010		0800
0900					.010		0900
1000					.010	.010	1000
1100	.010	.010			.010	.010	1100
1200	.010	.010					1200
1300	.010		NF	NF	NF	NF	1300
1400	.010	.010					1400
1500	.010	.010	.010		.010	.010	1500
1600	.010	.010			.010	.010	1600
1700					.010	.010	1700
1800					.010	.010	1800
1900					.010	.010	1900
2000					.010	.010	2000
2100			.010		.010	.010	2100
2200			.010		.010	.010	2200
2300			.010		.010	.010	2300
2400			.010		.010	.010	2400
AVRG		.002				.005	AVRG

BEST DOCUMENT AVAILABLE

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TABLE A-4

MEASURED AMBIENT SO_2 CONCENTRATIONS
WIDOWS CREEK STEAM PLANT

October 31, 1980
November 1, 1980

WIDOWS CREEK STEAM PLANT
STA 76 11
BC:305 10/31/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/24/80
VALIDATED

PERD ENDG (CST)	PREV WD 61M 0180	WIND SPEED 61M 0180	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CST)
0100	351	6.9			.020	.010	.010	.010	0100
0200	355	8.6			.020	.010	.010	.010	0200
0300	351	7.8			.020	.010	.010	.010	0300
0400	354	4.9			.020	.010	.010	.010	0400
0500	351	4.9			.020	.010			0500
0600	7	6.0			.020	.010			0600
0700	24	5.2			.020	.010	.010		0700
0800	42	3.8	.010		.020	.010	.010		0800
0900	32	6.3	.010		.020	.020	.020	.010	0900
1000	31	5.4	.010		.030	.020	.020	.010	1000
1100	353	6.0	.020	.010	.040	.030	.020	.020	1100
1200	342	4.9	.050	.030	.020	.020	.020	.020	1200
1300	331	4.9	.070	.050	.020	.020	.020	.020	1300
1400	289	6.4	.140	.020	.040	.030	.070	.040	1400
1500	264	7.8	.350	.080	.090	.040	.130	.080	1500
1600	296	9.9	.020	.010	.060	.030	.120	.050	1600
1700	304	8.8	.010	.010	.010	.010	.010	.010	1700
1800	312	5.3	.020	.010	.010		.010	.010	1800
1900	284	5.2	.020	.010	.010	.010	.020	.020	1900
2000	274	4.1	.010	.010	.010	.010	.020	.010	2000
2100	276	6.4	.010		.020	.010	.020	.020	2100
2200	278	6.8	.010		.020	.020	.130	.060	2200
2300	278	7.9	.010		.020	.020	.140	.090	2300
2400	299	10.0	.010		.410	.120	.130	.070	2400
AVRG	253	6.4		.010		.020		.024	AVRG

PERD ENDG (CST)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CST)
0100	LR	LR	.010	.010	.170	.160			0100
0200	LR	LR	.010	.010					0200
0300	LR	LR	.010						0300
0400	LR	LR							0400
0500	LR	LR							0500
0600	LR	LR							0600
0700	LR	LR							0700
0800	LR	LR	.010	.010			.020	.010	0800
0900	LR	LR	.020	.010			.020	.010	0900
1000	LR	LR	.040	.020			.020	.010	1000
1100	LR	LR	.030	.020			.050	.030	1100
1200	LR	LR	.180	.040	.240	.040	.330	.100	1200
1300	LR	LR	1.240	.310	1.790	.340	.140	.050	1300
1400	LR	LR	1.110	.230	.190	.020	.040	.020	1400
1500	LR	LR	.050	.010			.020	.020	1500
1600	LR	LR	.260	.050			.010	.010	1600
1700			.040	.020			.020	.020	1700
1800			.020	.010			.010		1800
1900	.040	.030	.010	.010			.020	.010	1900
2000	.100	.050	.010	.010					2000
2100	.050	.030	.010	.010					2100
2200	.010		.010	.010					2200
2300	.010		.010	.010					2300
2400	.010		.060	.010					2400
AVRG		LR		.033		.023		.012	AVRG

BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
80:305 10/31/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/26/80
VALIDATED

PERD ENDG (CST)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AR	SO2 AVG STA18 (053) BR	PERD ENDG (CST)
0100	.020	.010	.020	.010	.050	.030			0100
0200	.010	.010	.010		.130	.040			0200
0300	.010	.010	.010	.010	.290	.170			0300
0400	.010	.010	.870	.340	.030	.020	.010		0400
0500	.020	.010	.360	.030	.060	.040	.010	.010	0500
0600	.010	.010	.020	.010	.110	.050	.010	.010	0600
0700			1.980	.220	.360	.140	.040	.020	0700
0800	.020	.010	.020	.010	.200	.110	.020	.010	0800
0900	.020	.010	.020	.010	.020	.010	.020	.010	0900
1000	.050	.030	.050	.040	.450	.090	.050	.030	1000
1100	.040	.030	.190	.040	.540	.130	.070	.030	1100
1200	1.790	.550	.940	.240	.170	.070	.110	.040	1200
1300	1.090	.370	.110	.100	.040	.020	.030	.030	1300
1400	.020	.010	.100	.080	.020	.010	.020	.020	1400
1500	.010	.010	.070	.070	.020	.010	.020	.020	1500
1600	.010	.010	.060	.050	.020	.010	.020	.010	1600
1700	.010	.010	.050	.020	.020	.010	.020	.010	1700
1800	.010	.010	.020	.010	.020	.010	.020	.010	1800
1900	.020	.010	.010	.010	.020	.010	.020	.010	1900
2000	.020	.010	.010	.010	.020	.010	.020	.010	2000
2100	.010	.010	.010	.010	.020	.010	.010	.010	2100
2200	.020	.010	.010	.010	.020	.010	.010	.010	2200
2300	.020	.010	.020	.010	.020	.010	.010	.010	2300
2400	.010	.010	.010	.010	.020	.010	.010	.010	2400
AVRG		.048		.056		.042		.013	AVRG

PERD ENDG (CST)	SO2 PEAK STA17 (272) AQ	SO2 AVG STA17 (092) BQ	SO2 PEAK STA15 (348) AC	SO2 AVG STA15 (168) BD	SO2 PEAK STA20 (308) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CST)
0100	.010	.010	.010	.010	.010	.010	0100
0200	.010	.010	.010				0200
0300							0300
0400	.010		.010				0400
0500			.010	.010	.010	.010	0500
0600	.010	.010	.010	.010	.010	.010	0600
0700	.070	.050	.010	.010	.010	.010	0700
0800	.060	.040	.040	.010	.030	.010	0800
0900	.040	.030	.050	.040	.040	.020	0900
1000	.030	.020	.050	.020	.020	.010	1000
1100	.030	.020	.020	.010	.020	.010	1100
1200	.020	.010	.020	.020	.020	.020	1200
1300	.010	.010	.020	.020	.020	.010	1300
1400	.010	.010	.030	.020	.020	.010	1400
1500	.010	.010	.020	.020	.020	.010	1500
1600	.010	.010	.020	.010	.020	.010	1600
1700	.010	.010	.020	.010	.010	.010	1700
1800	.010	.010	.020	.010	.010	.010	1800
1900	.010	.010	.010	.010	.010	.010	1900
2000	.010	.010	.010	.010	.020	.010	2000
2100	.010	.010	.010	.010	.020	.010	2100
2200	.010	.010	.010	.010	.020	.010	2200
2300	.010	.010	.010	.010	.010	.010	2300
2400	.010	.010	.010	.010	.010	.010	2400
AVRG		.013		.012		.009	AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 7& 11
80:306 11/01/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/24/80
VALIDATED

PERD ENDG (CST)	PREV WD 61M 01BD	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CST)
0100	311	9.0	.010		.040	.020	.060	.050	0100
0200	296	6.0	.010		.080	.060	.130	.090	0200
0300	322	7.2	.020	.010	.110	.060	.120	.100	0300
0400	312	6.9			.080	.050	.130	.100	0400
0500	339	5.9			.040	.020	.070	.040	0500
0600	324	6.2			.020	.010	.040	.020	0600
0700	322	4.0					.020	.010	0700
0800	334	3.3			.010	.010	.070	.030	0800
0900	321	3.4	.040	.020	.010	.010	.020	.010	0900
1000	293	4.0	.040	.030	.010		.010	.010	1000
1100	300	4.0	.050	.030	.010		.010	.010	1100
1200	256	6.3	.320	.070	.130	.020	.050	.010	1200
1300	250	7.6	.140	.020	.340	.210	.450	.160	1300
1400	246	7.6	.080	.010	.200	.100	.200	.140	1400
1500	235	8.3	.010		.110	.050	.500	.210	1500
1600	245	9.4	.010		.050	.030	.260	.160	1600
1700	259	8.8	.010		.020		.110	.050	1700
1800	250	12.0	.010	.010			.020	.010	1800
1900	249	13.8	.010		IM	IM	.130	.050	1900
2000	261	11.2	.010		.030	.020	.070	.040	2000
2100	277	8.9	.010		.020	.020	.050	.040	2100
2200	299	8.5	.010		.020	.020	.030	.030	2200
2300	288	8.3	.010		.020	.010	.020	.010	2300
2400	316	5.2	.010		.010	.010	.010		2400
AVRG	265	7.3		.008		.031		.057	AVRG

PERD ENDG (CST)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CST)
0100	.010		.460	.260					0100
0200	.020	.010	.080	.020					0200
0300	.110	.030	.280	.130			.010		0300
0400	.050	.020	.240	.150			.010		0400
0500	.080	.030	.290	.210			.020	.010	0500
0600	.660	.240	.900	.370			.010	.010	0600
0700	.400	.110	.440	.360	.060	.020	.010	.010	0700
0800	.320	.030	.380	.110	.300	.060	.010	.010	0800
0900	.300	.050	3.630	.570	3.770	1.210	.050	.030	0900
1000	1.990	.580	3.310	1.400	1.740	.730	.040	.030	1000
1100	1.740	.350	1.950	.760	2.370	1.200	.020	.020	1100
1200	.470	.030	.260	.010			.020	.010	1200
1300							.020	.010	1300
1400							.010		1400
1500							.020	.010	1500
1600							.020	.010	1600
1700							.020	.010	1700
1800							.020	.010	1800
1900	.040	.030					.010	.010	1900
2000	.100	.050					.020	.010	2000
2100	.050	.030					.010	.010	2100
2200	.010	.010							2200
2300	.010	.010					.010		2300
2400	.020	.010							2400
AVRG		.067		.181		.134		.008	AVRG

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
STA 76 11
EC13C6 11/01/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 11/26/80
VALIDATED

PERD ENDG (CST)	SO2 PEAK STA 6 (158) AF	SO2 AVG STA 6 (338) BF	SO2 PEAK STA11 (167) AK	SO2 AVG STA11 (347) BK	SO2 PEAK STA25 (192) AY	SO2 AVG STA25 (012) BY	SO2 PEAK STA18 (233) AR	SO2 AVG STA18 (053) BR	PERD ENDG (CST)
0100	.010	.010	.010	.010	.020	.010	.010	.010	0100
0200	.010		.010	.010	.020	.010	.010		0200
0300	.010		.010	.010	.020	.010	.010		0300
0400	.020	.010	.070	.020	.050	.010	.010		0400
0500			.060	.030	.010	.010	.010		0500
0600					.010	.010	.010	.010	0600
0700					.010	.010	.010		0700
0800	.010						.020	.010	0800
0900	.260	.030			.020	.010	.020	.010	0900
1000	.020	.010			.020	.020	.020	.010	1000
1100	.020	.010			.010	.010	.030	.020	1100
1200	.010				.010	.010	.020	.020	1200
1300					.010	.010	.020	.010	1300
1400	.010				.010	.010	.020	.010	1400
1500	.010				.010	.010	.020	.010	1500
1600	.010						.020	.010	1600
1700					.010	.010	.010	.010	1700
1800					.010	.010	.020	.010	1800
1900					.010	.010	.020	.010	1900
2000					.010	.010	.020	.010	2000
2100					.020	.010	.010	.010	2100
2200	.010				.020	.010	.010	.010	2200
2300	.010				.020	.010	.010	.010	2300
2400	.010				.010	.010	.010	.010	2400
AVRG		.002		.003		.009		.008	AVRG

PERD ENDG (CST)	SO2 PEAK STA17 (272) AQ	SO2 AVG STA17 (092) BQ	SO2 PEAK STA15 (348) AO	SO2 AVG STA15 (168) BO	SO2 PEAK STA20 (308) AT	SO2 AVG STA20 (128) BT	PERD ENDG (CST)
0100			.010	.010			0100
0200							0200
0300							0300
0400							0400
0500							0500
0600							0600
0700			.010				0700
0800	.010		.010	.010	.010		0800
0900	.010		.010	.010			0900
1000	.010		.020	.010			1000
1100			.020	.010	.010		1100
1200	.010	.010	.020	.010	.010	.010	1200
1300	.010	.010	.020	.010			1300
1400	.010		.020	.010			1400
1500	.010	.010	.020	.010			1500
1600	.010	.010	.020	.010			1600
1700	.010	.010	.020	.010			1700
1800	.010	.010	.020	.010			1800
1900	.010	.010	.010	.010			1900
2000	.010		.010	.010			2000
2100			.010	.010			2100
2200			.010	.010			2200
2300			.010	.010			2300
2400	.010	.010	.010	.010			2400
AVRG		.003		.007			AVRG

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BEST DOCUMENT AVAILABLE

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TABLE A-5

MEASURED AMBIENT SO_2 CONCENTRATIONS
WIDOWS CREEK STEAM PLANT

December 14, 1980
December 15, 1980

14-M, N

WIDOWS CREEK STEAM PLANT
STA 76 11
80:349 12/14/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

2-2-81

PRINT-DATE 01/29/81
VALIDATED

PERD ENDG (CST)	PREV WD 61M 0180	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CST)
0100	351	10.8	.020	.010	.010	.010	.020	.020	0100
0200	2	9.2	.020	.010	.020	.020	.020	.010	0200
0300	3	7.6	.020	.010	.020	.020	.020	.010	0300
0400	2	9.7	.020	.010	.020	.020	.020	.010	0400
0500	11	9.9	.010	.010	.020	.020	.020	.010	0500
0600	20	8.7	.010	.010	.020	.020	.010	.010	0600
0700	35	8.3	.010	.010	.020	.010	.010	.010	0700
0800	3	8.9	.010		.020	.010	.010	.010	0800
0900	8	7.1	.010	.010	.010	.010	.010	.010	0900
1000	17	6.3	.010	.010	.010		.010	.010	1000
1100	36	8.0	.020	.010			.010	.010	1100
1200	21	6.9	.020	.010			.010	.010	1200
1300	21	9.3	.020	.010			.010		1300
1400	23	6.1	.020	.010			.010	.010	1400
1500	11	5.6	.020	.010	.020	.010	.010	.010	1500
1600	295	2.9	.020	.010	.010		.010	.010	1600
1700	286	1.8	.020	.010	.030	.020	.020	.010	1700
1800	62	3.0	.020	.010	.010	.010	.010	.010	1800
1900	265	3.4	.020	.010	.010	.010	.010	.010	1900
2000	254	8.3	.020	.010	.040	.020	.050	.020	2000
2100	266	6.6	.020	.010	.020	.020	.040	.030	2100
2200	256	6.2	.020	.010	.020	.020	.070	.040	2200
2300	10	2.5	.020	.010	.050	.030	.320	.130	2300
2400	80	1.1	.020	.010	.490	.140	.980	.460	2400
AVRG	97	6.5		.009		.017		.036	AVRG

PERD ENDG (CST)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CST)
0100	.020	.020	.020	.010	.010				0100
0200	.020	.020	.020	.010	.020	.010	.010		0200
0300	.020	.010	.020	.010	.010				0300
0400	.020	.010	.010	.010					0400
0500	.020	.010	.010		.010				0500
0600	.020	.010	.010		.020	.010			0600
0700	.010	.010							0700
0800	.020	.010	.020		IM	IM			0800
0900	.020	.010	.010						0900
1000	.010	.010	.010						1000
1100	.010	.010			.010				1100
1200	.010	.010							1200
1300	.010	.010	.010						1300
1400	.010	.010			.010	.010			1400
1500	.010	.010			.010	.010	.050	.010	1500
1600	.040	.020	.050	.010	.070	.020	.150	.110	1600
1700	.130	.080	.140	.070	.100	.060	.190	.130	1700
1800	.130	.060	.090	.070	.120	.090	.130	.080	1800
1900	.070	.050	.060	.030	.110	.060	.050	.020	1900
2000	.100	.040	.070	.030	.050	.040	.050	.030	2000
2100	.020	.010			.020	.010	.020	.010	2100
2200	.010				.010	.010			2200
2300	.020	.010	.010		.010	.010			2300
2400	.020	.010			.010				2400
AVRG		.018		.010		.014		.016	AVRG

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BEST DOCUMENT AVAILABLE

AVRG .018 .010 .014 .016 AVRG

WIDOWS CREEK STEAM PLANT
STA 76 11
8C:349 12/14/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 01/29/81
VALIDATED

	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	
	PEAK	AVG	PEAK	AVG	PEAK	AVG	PEAK	AVG	
PERD	STA 6	STA 6	STA11	STA11	STA25	STA25	STA18	STA18	PERD
ENDG	(158)	(338)	(167)	(347)	(192)	(012)	(233)	(053)	ENDG
(CST)	AF	BF	AK	BK	AY	BY	AR	BR	(CST)
0100	.020	.010	.020	.020			.020	.020	0100
0200	.010	.010	.020	.020	.010	.010	.020	.010	0200
0300	.010	.010	.020	.020			.020	.010	0300
0400			.020	.010	.050	.020	.020	.010	0400
0500			.010	.010	.180	.040	.010	.010	0500
0600	.010		.010	.010	.240	.080	.010	.010	0600
0700							.010	.010	0700
0800							.010		0800
0900			.010		.100	.020	.010		0900
1000					.930	.290			1000
1100					.370	.090	.020	.010	1100
1200					.210	.080	.030	.020	1200
1300					.390	.140	.050	.030	1300
1400					.410	.220	.100	.060	1400
1500			.020	.010	.170	.070	.050	.020	1500
1600	.320	.100	.360	.140	.240	.110	.020	.010	1600
1700	.530	.320	.280	.180	.070	.040	.020	.010	1700
1800	.250	.190	.330	.190	.240	.080	.030	.010	1800
1900	.080	.060	.120	.070	.250	.070	.010	.010	1900
2000	.040	.010	.040	.010	.020				2000
2100			.010	.010					2100
2200					[illegible]				2200
2300									2300
2400	.010		.010	.010					2400
AVRG		.029		.029		.056		.010	AVRG

	SO2	SO2	SO2	SO2	SO2	SO2	
	PEAK	AVG	PEAK	AVG	PEAK	AVG	
PERD	STA17	STA17	STA15	STA15	STA20	STA20	PERD
ENDG	(272)	(092)	(348)	(168)	(308)	(128)	ENDG
(CST)	AQ	BQ	AC	BO	AT	BT	(CST)
0100	.020	.020	.020	.010	.020	.010	0100
0200	.010	.010	.010	.010	.020	.010	0200
0300	.010	.010	.010	.010	.010	.010	0300
0400	.010	.010	.010	.010	.010		0400
0500	.010	.010	.010				0500
0600	.010	.010	.010				0600
0700	.010	.010	.010	.010			0700
0800	.010	.010	.010				0800
0900	.010	.010	.010	.010			0900
1000	.010	.010	.010				1000
1100	.010						1100
1200			.010	.010			1200
1300			.010	.010			1300
1400			.010	.010			1400
1500			.010	.010			1500
1600			.010	.010	.010		1600
1700			.010	.010	.020		1700
1800			.020	.010	.010		1800
1900			.020	.010	.010		1900
2000			.020	.010	.010		2000
2100			.020	.010			2100
2200			.020	.010			2200
2300			.010	.010			2300
2400			.020	.010	.010		2400
AVRG		.004		.007		.001	AVRG

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WIDOWS CREEK STEAM PLANT
STA 76 11
80:350 12/15/80 (NOVA)

TENNESSEE VALLEY AUTHORITY
AMBIENT AIR CONCENTRATIONS (PPM)

PRINT-DATE 01/29/81
VALIDATED

PERD ENDG (CST)	PREV WD 61M 01BD	WIND SPEED 61M 01ED	SO2 PEAK STA23 (028) AW	SO2 AVG STA23 (208) BW	SO2 PEAK STA14 (054) AN	SO2 AVG STA14 (234) BN	SO2 PEAK STA 8 (069) AH	SO2 AVG STA 8 (249) BH	PERD ENDG (CST)
0100	302	1.4	.010	.010	2.400	1.460	2.450	1.470	0100
0200	276	1.9			.160	.060	.630	.240	0200
0300	286	3.9	.010	.010	.770	.140	1.230	.530	0300
0400	132	5.0	IM	IM	.290	.130	.690	.340	0400
0500	180	4.8	.080	.030	.760	.360	.930	.600	0500
0600	209	3.9	.010	.010	1.800	.600	.570	.220	0600
0700	202	5.3	.010		.600	.430	.220	.150	0700
0800	214	8.4	.010		.320	.250	.260	.230	0800
0900	202	6.8	.040	.020	.270	.150	.190	.080	0900
1000	206	6.8	.090	.040	.050	.020	.020	.010	1000
1100	187	9.7	.060	.050	.010		.020	.010	1100
1200	194	9.3	.040	.030			.030	.020	1200
1300	205	11.9	.020	.010	.010		.040	.030	1300
1400	210	13.4	.020	.010	.010		.020	.020	1400
1500	222	8.3	.020	.010	.110	.020	.020	.010	1500
1600	201	7.6	.020	.010			.020	.010	1600
1700	195	8.0	.020	.020			.020	.010	1700
1800	195	9.0	.020	.010			.020	.010	1800
1900	198	11.3	.020	.010			.020	.010	1900
2000	217	11.2	.010	.010			.020	.010	2000
2100	229	10.6	.010	.010			.020	.010	2100
2200	230	11.3	.010	.010			.020	.010	2200
2300	230	9.9	.010	.010	.110	.040	.020	.010	2300
2400	238	10.3	.010		.190	.110	.020	.010	2400
AVRG	215	7.9		.013		.157		.168	AVRG

PERD ENDG (CST)	SO2 PEAK STA10 (102) AJ	SO2 AVG STA10 (282) BJ	SO2 PEAK STA 9 (118) AI	SO2 AVG STA 9 (298) BI	SO2 PEAK STA 3 (135) AC	SO2 AVG STA 3 (315) BC	SO2 PEAK STA24 (139) AX	SO2 AVG STA24 (319) BX	PERD ENDG (CST)
0100	.020	.010	.010		.010	.010			0100
0200	.130	.020							0200
0300	.280	.060	.060	.030	.160	.040	.010	.010	0300
0400	.130	.030	.070	.040	.110	.030	.010	.010	0400
0500	.310	.120	.090	.070	.070	.040			0500
0600	.460	.290	.310	.210	.070	.040	.010		0600
0700	.880	.360	.610	.310	.320	.110	.020	.020	0700
0800	.600	.200	.320	.200	.230	.130	.020	.020	0800
0900	.070	.020	.080	.020	.130	.040	.020	.020	0900
1000	.040	.030					.020	.020	1000
1100	.010				.030	.010	.050	.030	1100
1200	.020	.010	.020	.010	.020	.010	.030	.020	1200
1300	.020	.010	.020	.010	.020	.020			1300
1400	.020	.010	.010		.050	.020	.020	.010	1400
1500	.010	.010	.010	.010	.020	.010			1500
1600	.020	.010	.010		.020	.010			1600
1700	.010	.010	.010		.020	.010			1700
1800	.010	.010	.010		.020	.010			1800
1900	.010	.010	.010		.020	.010			1900
2000	.020	.010	.010	.010	.020	.010			2000
2100	.010	.010	.010	.010	.020	.010			2100
2200	.020	.010	.010		.020	.010			2200
2300	.010				.010	.010			2300
2400	.010	.010	.010		.010	.010			2400
AVRG		.052		.038		.025		.006	AVRG

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2400        .010      .010                .010                .010      .010                          2400
AVRG                  .052                          .018                .025                .006      AVRG

WIDOWS CREEK STEAM PLANT                  TENNESSEE VALLEY AUTHORITY                  PRINT-DATE 01/29/81
STA 76 11                               AMBIENT AIR CONCENTRATIONS (PPM)                  VALIDATED
BC:350    12/15/80 (NOVA)
             SO2       SO2                 SO2       SO2       SO2       SO2       SO2       SO2
            PEAK       AVG                PEAK       AVG      PEAK       AVG      PEAK       AVG
PERD       STA 6     STA 6               STA11     STA11     STA25     STA25     STA18     STA18      PERD
ENDG       (158)     (338)               (167)     (347)     (192)     (012)     (233)     (053)      ENDG
(CST)         AF        BF                  AK        BK        AY        BY        AR        BR     (CST)
0100                                                                                                 0100
0200        .060      .010               4.250     1.760      .650      .130                         0200
0300       3.310      .360               4.500      .960      .600      .080                         0300
0400        .580      .170               3.610      .770      .080      .030                         0400
0500        .220      .150                .700      .220      .080      .030                         0500
0600        .640      .230                .670      .210      .680      .190                         0600
0700        .540      .390                .800      .400      .530      .280                         0700
0800        .570      .200                .500      .140      .060      .030                         0800
0900        .050      .020                .080      .020      .020                .020      .010     0900
1000          IM        IM                .060      .020      .060      .010      .020      .010     1000
1100          IM        IM                .020      .010                          .020      .010     1100
1200                                        IM        IM      .020                .020      .010     1200
1300                                        IM        IM      .020      .010      .020      .010     1300
1400                                        NE        NE      .020      .010      .010      .010     1400
1500                                      .020      .010      .020      .010      .020      .010     1500
1600        .010                          .020      .020      .020      .010      .020      .010     1600
1700                                      .030      .030      .010      .010      .020      .010     1700
1800        .010                          .020      .020                                             1800
1900        .010      .010                .020      .010                                             1900
2000        .020      .010                .020      .010                                             2000
2100        .010      .010                .020      .010                                             2100
2200        .010      .010                .010      .010                                             2200
2300        .010      .010                                                                           2300
2400        .010                                                                                     2400
AVRG                  .071                          .220                .034                .003     AVRG
             SO2       SO2                 SO2       SO2       SO2       SO2
            PEAK       AVG                PEAK       AVG      PEAK       AVG
PERD       STA17     STA17               STA15     STA15     STA20     STA20                          PERD
ENDG       (272)     (092)               (348)     (168)     (308)     (128)                          ENDG
(CST)         AQ        BQ                  AO        BO        AT        BT                         (CST)
0100                                      .060      .030      .010                                   0100
0200                                      .040      .020                                             0200
0300                                      .040      .010      .010                                   0300
0400                                      .010                .020      .010                         0400
0500        .010                          .040      .010      .010      .010                         0500
0600                                      .330      .180      .200      .060                         0600
0700        .010                          .610      .260      .650      .300                         0700
0800        .010                          .190      .070      .430      .250                         0800
0900                                      .200      .130      .190      .060                         0900
1000        .010      .010                .100      .040      .050      .020                         1000
1100                                      .020                .030      .020                         1100
1200        .010      .010                                    .020      .010                         1200
1300        .010      .010                .010                .010      .010                         1300
1400        .010      .010                .010      .010      .010      .010                         1400
1500        .010      .010                .010      .010      .020      .010                         1500
1600        .010      .010                .020      .010      .020      .010                         1600
1700        .010      .010                .020      .020      .020      .020                         1700
1800        .010      .010                .020      .010      .020      .010                         1800
1900        .010      .010                .020      .010      .020      .010                         1900
2000        .010      .010                .010      .010      .010      .010                         2000
2100        .010      .010                .010      .010      .010      .010                         2100
2200        .010      .010                .010      .010      .020      .010                         2200
2300        .010                          .010      .010      .020      .010                         2300
2400                                      .020      .010      .010      .010                         2400
AVRG                  .005                          .036                .096                         AVRG
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Table A-6

MAXIMUM SO_2 CONCENTRATIONS DURING HIGH SO_2 CONCENTRATION PERIODS (AT STATIONS RECORDING EXCESSES)

Date	Station	Maximum SO_2 Concentrations (ppm)			
		Peak	1-hour Average	3-hour Average	24-hour Average
October 6-7, 1980	8	3.870	2.260	1.160	0.173
	11	3.100	1.420	.933	.181
October 9-10, 1980	14	1.190	.610	.440	.177
October 31-November 1, 1980	3	3.770	1.210	1.047	.151
	9	3.630	1.400	.910	.211
December 14-15, 1980	8	2.450	1.470	.247	.195
	11	4.500	1.760	1.163	.244
	14	2.400	1.460	.553	.162

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Appendix B

SO_2 Emissions Data

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Table B-1

SULFUR DIOXIDE EMISSION INVENTORY DATA FOR SO_2 POINT SOURCES IN THE VICINITY OF WIDOWS CREEK STEAM PLANT

Source Name	UTM Source Location (km) Easting	UTM Source Location (km) Northing	Estimated Maximum SO_2 Emission Rate (g/sec)
Mead Corporation	610.9	3858.6	54
Penn-Dixie Cement Corporation	615.6	3873.6	56
Widows Creek Steam Plant (TVA)	614.0	3860.7	4325

Table B-2

WIDOWS CREEK STEAM PLANT SO_2 EMISSIONS

Date	SO_2 Emissions (lb/10^6 Btu)			Approximate SO_2 Emissions (g/s)			
	Units 1-6	Unit 7	Unit 8	Units 1-6	Unit 7	Unit 8	Plant Total
October 6, 1980	1.2	3.4	0.2	766	1449	21	2236
October 7, 1980	1.2	3.3	0.3	662	1522	94	2278
October 9, 1980	1.4	7.0	0.8*	746	2352	0*	3098
October 10, 1980	1.2	6.0	Off	777	2384	0	3161
October 31, 1980	1.3	5.5	2.1	1008	3287	620	4915
November 1, 1980	1.2	6.0	2.4	704	2090	693	3487
December 14, 1980	1.4	4.1	Off	609	2142	0	2751
December 15, 1980	1.5	4.1	Off	746	1434	0	2185

*Unit 8 off-line at 0430 CDT on October 9, 1980

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Appendix C

Meteorological Data

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METEOROLOGICAL SUMMARY

The meteorological records used in this summary consist of surface and upper air data collected by both the National Weather Service and the Tennessee Valley Authority. Figures C-1 through C-4 are surface and upper air charts for the days involved. Tables C-1 through C-4 are meteorological tower data during the period of high SO_2 concentrations. A summary of the meteorological conditions for each excess period is included below.

October 6-7, 1980

A high pressure system, centered over the southeast part of the country, was the predominant factor influencing the Widows Creek area. At 0429 CDT, a surface-based inversion extended to about 430 m above the surface. Inversion breakup began by 0800 CDT, with the inversion completely eliminated by 1232 CDT. Winds during the period 0400-1200 CDT when high SO_2 concentrations were measured were generally from the west and southwest at speeds under 3.0 m/sec. Skies were clear throughout the period, although morning fog restricted visibility significantly.

October 9-10, 1980

A high-pressure system was located over the southeastern United States. A cold/stationary front was located along an east-west axis through Kentucky with a low pressure center over southern Illinois. At 0345 CDT, a surface-based inversion extended to about 540 m above the surface. Inversion breakup began by 0800 CDT, with the inversion completely eliminated by 1228 CDT. Winds, during the period 2200-1000 CDT, when highest SO_2 concentrations were measured, were generally from the southwest at speeds of 1-6 m/sec. Skies were clear throughout the pre-noon hours, although diurnal fog restricted visibility significantly.

October 31-November 1, 1980

A high-pressure system centered in the Texas-Louisiana area had a major influence on the southeastern United States. A cold front was located north of the Tennessee Valley, crossing north of Kentucky on a generally east-west axis at 0600 CST. A low-pressure center was located over northern Oklahoma. At 0430 CST, a surface-based inversion extended to about 300 m above the surface. Inversion breakup began by 0900 CST, but the inversion was not completely eliminated after 1224 CST. Winds during the period 0800-1000 CST, when highest SO_2 concentrations were measured, were from the west-northwest at less than 3 m/sec. Skies were clear throughout the pre-noon hours.

December 14-15, 1980

A high-pressure system, centered over eastern Mississippi, was the predominant factor influencing the Widows Creek area. A cold front, approaching the Tennessee Valley from the north, was not a significant influence at the time of the excesses. At 2045 CST on December 14, a surface-based inversion extended to approximately 250 m above the surface with a lapse rate of $1.09^{\circ}C/100$ m. By 0435 CST on December 15, the inversion deepened and became stronger, inversion top was approximately 370 m above the surface with a lapse rate of $2.66^{\circ}C/100$ m. Winds, during the period 2200-0500 CST when highest SO_2 concentrations were measured, were generally from the northeast below 300 m, from the west-southwest between 300 and 400 m, and from the southeast above 400 m with speeds up to 7.0 m/sec in the higher levels. Skies were generally clear throughout the period.

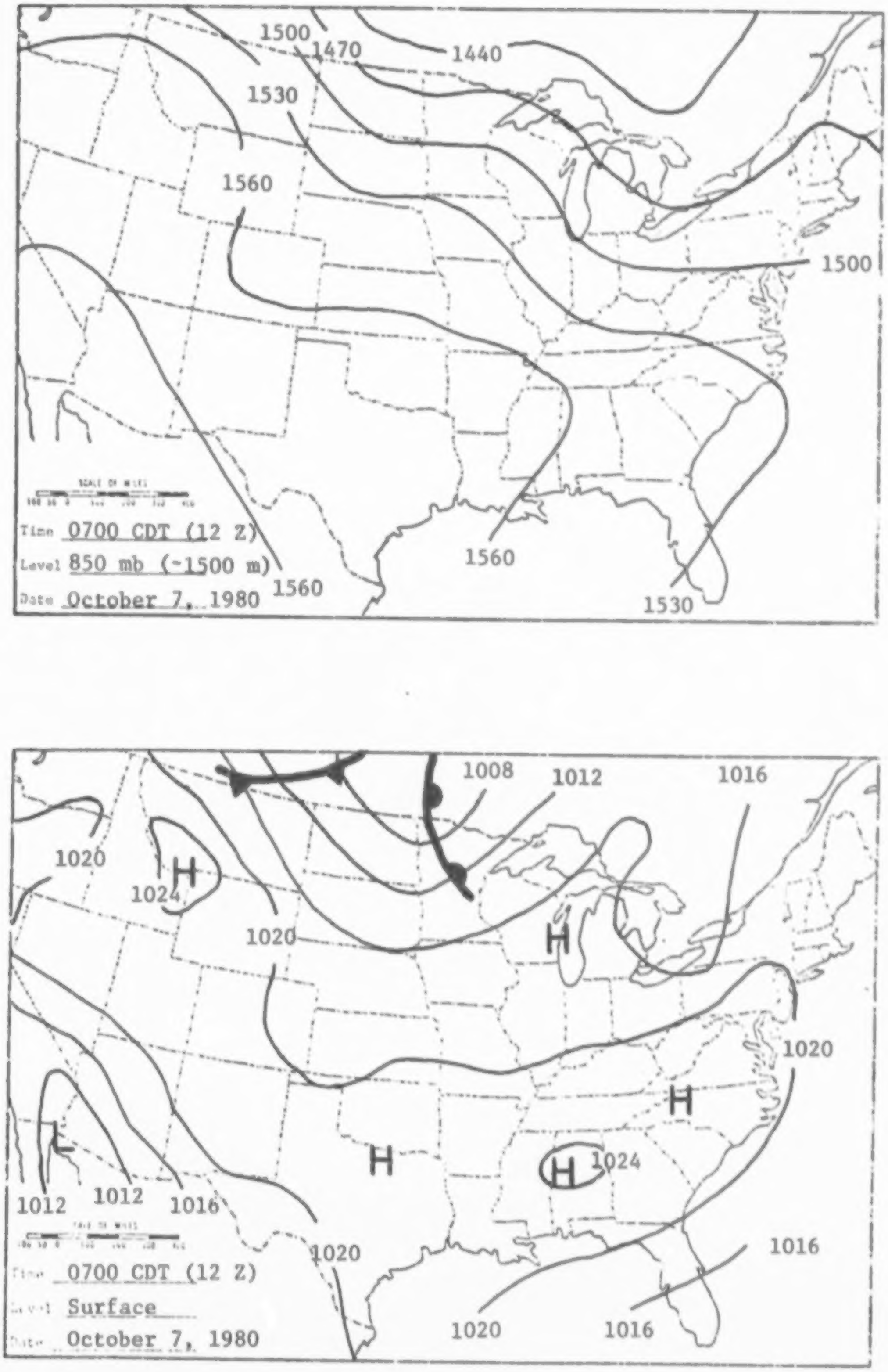
1500
1470
1440
1530
1560
1500
SCALE OF MILES
Time 0700 CDT (12 Z)
Level 850 mb (~1500 m)
Date October 7, 1980
1560
1560
1530
1008
1012
1016
1020
H
1024
1020
H
1020
H
H
H
1024
L
1012
1012
1016
1020
1016
1020
1016
SCALE OF MILES
Time 0700 CDT (12 Z)
Level Surface
Date October 7, 1980

Figure C-1. SYNOPTIC WEATHER MAPS - OCTOBER 7, 1980

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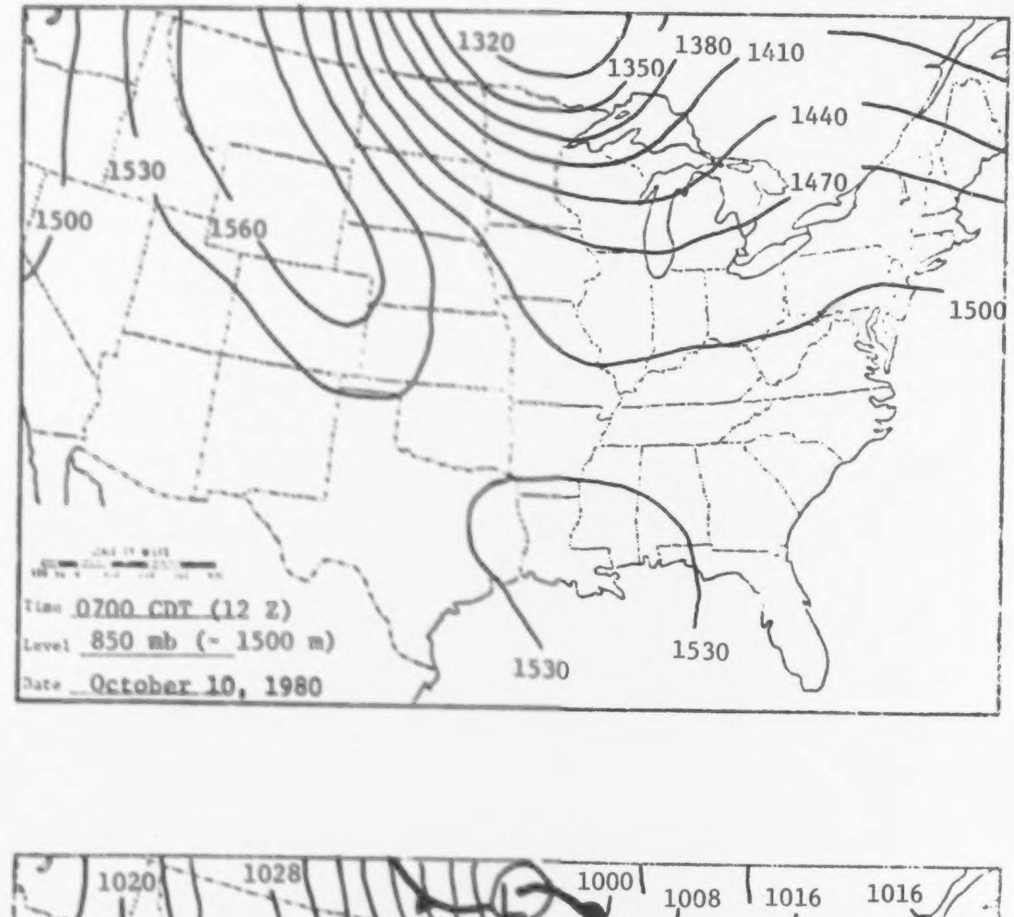
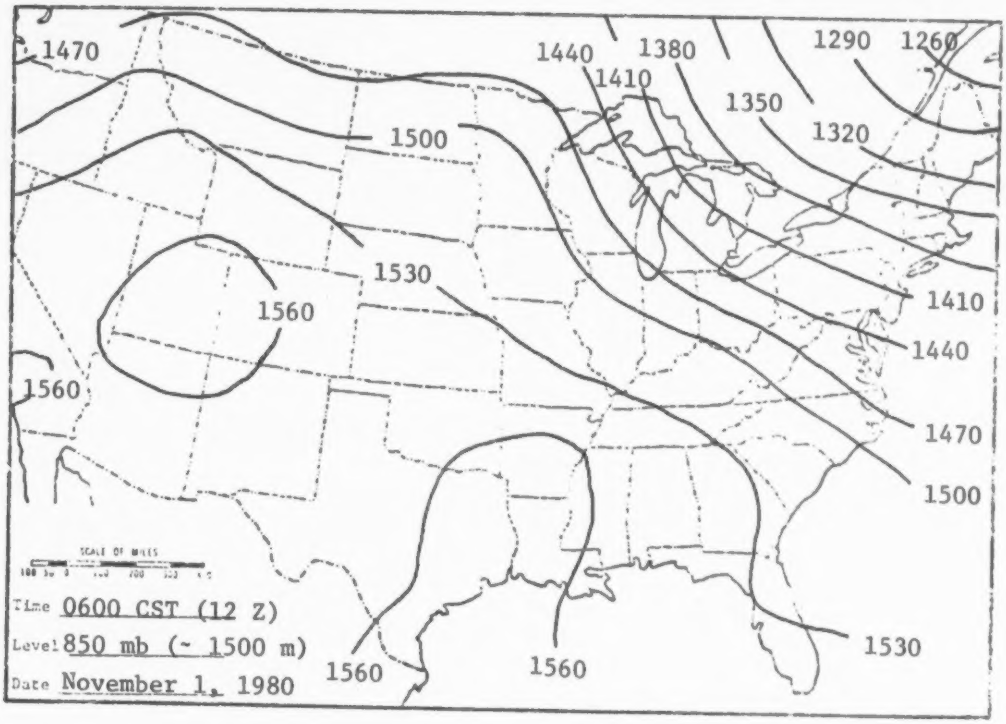
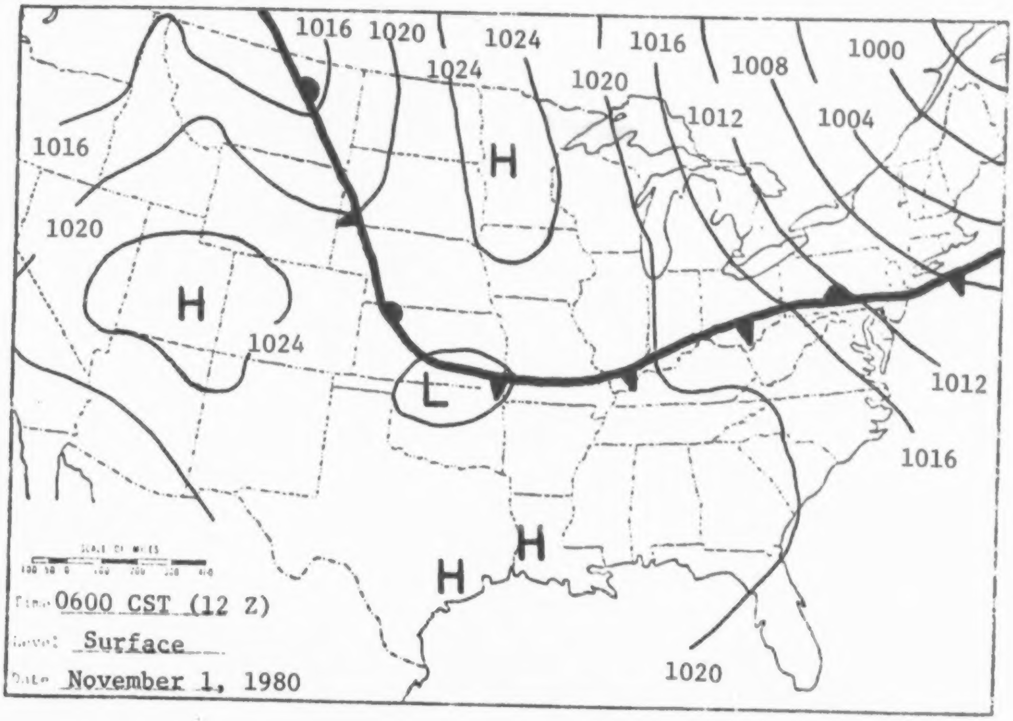

1320
1350
1380
1410
1440
1470
1500
1530
1500
1560
1500
1530
1530
Time 0700 CDT (12 Z)
Level 850 mb (~ 1500 m)
Date October 10, 1980
1020
1028
1000
1008
1016
1016
1016
1004
1012
H
1024
1016
1020
L
L
1012
L
H
1016
1012
1012
Time 0700 CDT (12 Z)
Level Surface
Date October 10, 1980

Figure C-2. SYNOPTIC WEATHER MAPS - OCTOBER 10, 1980


1470
1440
1380
1290
1260
1410
1350
1320
1500
1530
1560
1560
1410
1440
1470
1500
1560
1560
1530
SCALE OF MILES

Time 0600 CST (12 Z)
Level 850 mb (~ 1500 m)
Date November 1, 1980


1016
1020
1024
1024
1016
1000
1020
1008
1012
1004
1016
H
1020
H
1024
L
1012
1016
H
H
1020
SCALE OF MILES

Time 0600 CST (12 Z)
Level Surface
Date November 1, 1980

Figure C-3. SYNOPTIC WEATHER MAPS - NOVEMBER 1, 1980

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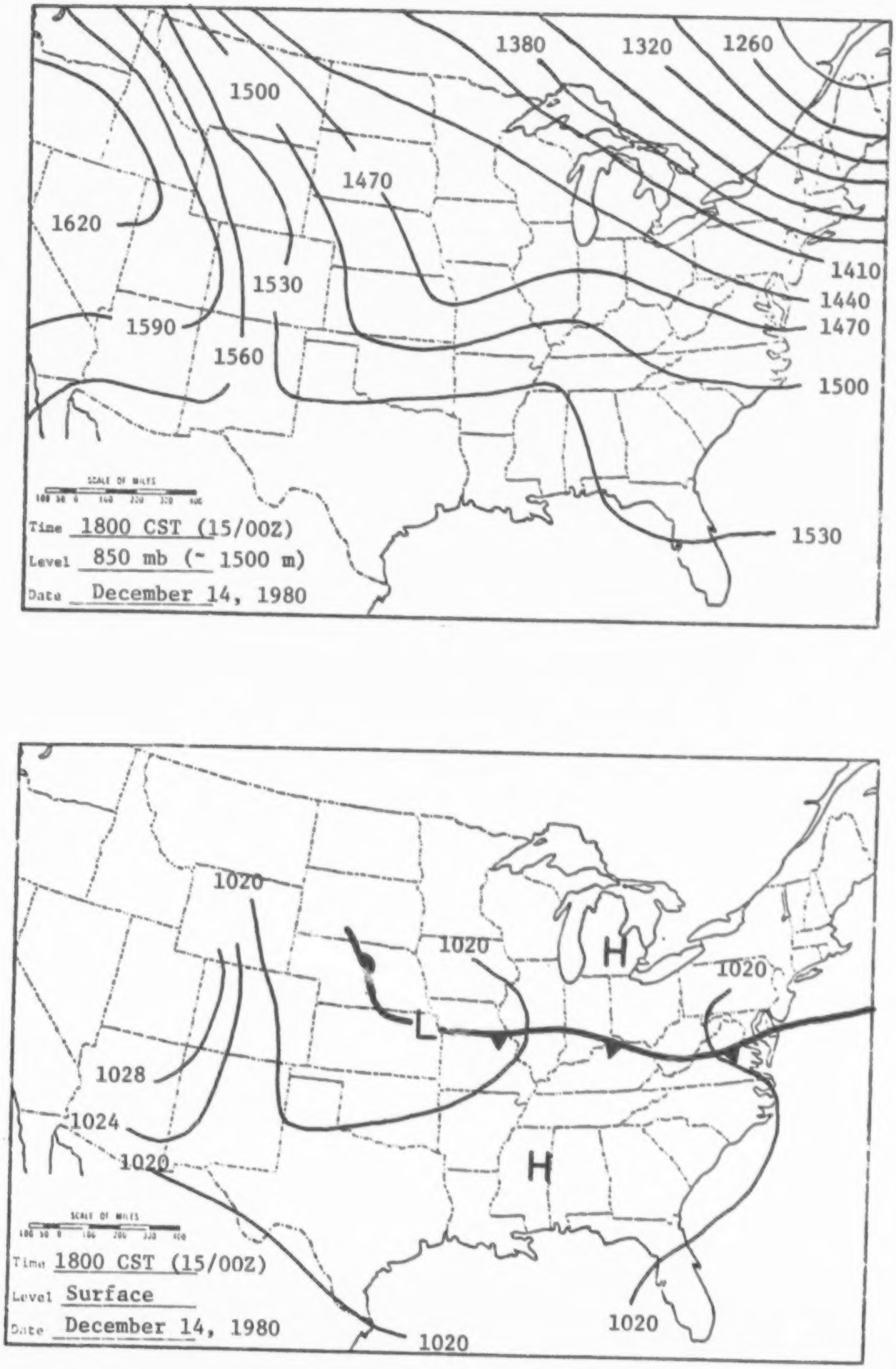
1380
1320
1260
1500
1470
1620
1530
1590
1560
1410
1440
1470
1500
1530
SCALE OF MILES
100 50 0 100 200 300 400
Time 1800 CST (15/00Z)
Level 850 mb (~ 1500 m)
Date December 14, 1980
1020
1020
H
1020
L
1028
1024
1020
H
SCALE OF MILES
100 50 0 100 200 300 400
Time 1800 CST (15/00Z)
Level Surface
Date December 14, 1980
1020
1020

Figure C-4. SYNOPTIC WEATHER MAPS - DECEMBER 14, 1980

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Table C-1

METEOROLOGICAL TOWER DATA
WIDOWS CREEK STEAM PLANT

October 6, 1980
October 7, 1980

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA VALLEY
OCTOBER 6, 1980

HOUR ENDING (CDT)	61-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	3.2	41	86	1.5	16	71	7.8	7.2	5.3	0.0
200	3.1	40	89	1.5	9	56	7.3	6.5	5.5	0.0
300	2.7	22	61	1.2	360	30	6.4	6.0	4.1	0.0
400	3.3	46	75	1.6	20	44	6.0	5.4	4.0	0.0
500	4.2	35	94	1.7	11	61	5.2	4.2	3.6	0.0
600	3.2	47	88	1.6	15	78	4.9	4.0	3.1	0.0
700	3.4	48	94	1.4	16	66	4.4	3.7	2.6	0.01
800	3.4	35	86	1.8	21	60	4.2	4.1	3.9	0.17
900	4.0	38	69	2.9	33	56	5.6	6.2	6.5	0.48
1000	5.5	26	81	3.7	27	54	8.4	9.4	10.0	0.76
1100	4.2	20	61	3.1	32	46	11.3	12.4	13.3	0.97
1200	3.7	15	58	3.0	12	36	13.0	14.1	15.0	1.10
1300	3.0	23	49	2.4	31	32	14.7	15.8	16.7	1.13
1400	3.9	23	49	3.0	36	35	16.5	17.5	18.4	1.11
1500	3.4	60	54	2.1	48	30	17.8	18.9	19.6	0.96
1600	3.1	65	55	1.7	67	25	18.5	19.6	20.1	0.74
1700	2.5	53	75	1.5	47	33	18.9	19.8	20.0	0.45
1800	2.1	21	45	0.9	26	44	18.9	19.1	18.5	0.15
1900	0.8	74	48	0.6	269	52	17.4	15.3	12.3	0.01
2000	1.7	48	39	0.8	9	50	14.7	12.5	9.4	0.0
2100	1.7	54	60	0.7	301	35	12.5	10.6	7.9	0.0
2200	1.4	51	57	0.9	5	42	11.1	9.5	6.6	0.0
2300	1.7	36	49	0.8	23	42	9.8	8.4	5.7	0.0
2400	2.0	43	51	1.0	22	29	8.8	7.6	5.2	0.0

* INDICATES LOST RECORDS

BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
METEOROLOGICAL TOWER DATA VALLEY
OCTOBER 7, 1980

HOUR ENDING (CDT)	61-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	1.2	47	37	0.8	306	45	8.1	6.6	4.6	0.0
200	0.9	81	46	0.8	349	35	7.4	5.8	3.9	0.0
300	0.4	55	90	0.8	351	39	6.7	5.0	3.4	0.0
400	0.6	75	71	0.8	329	43	6.2	5.0	3.9	0.0
500	1.6	64	82	0.9	344	52	6.0	4.2	3.9	0.0
600	1.5	47	73	1.3	1	63	5.0	4.0	4.1	0.0
700	2.3	44	74	1.0	352	60	4.8	4.0	4.1	0.0
800	1.6	52	81	1.2	354	55	4.8	4.1	4.3	0.05
900	0.8	15	55	0.8	321	48	5.2	5.4	5.8	0.18
1000	0.7	59	44	0.7	30	19	7.3	8.0	8.4	0.53
1100	1.1	176	32	1.4	167	45	12.0	12.8	13.3	0.93
1200	3.0	201	75	2.4	193	36	16.4	17.3	18.1	1.07
1300	3.0	192	66	2.3	182	41	18.8	19.7	20.5	1.12
1400	2.9	190	60	2.2	181	37	20.1	21.1	21.9	1.07
1500	3.1	195	75	2.3	187	47	21.3	22.3	22.9	0.93
1600	2.9	196	77	2.1	190	41	22.4	23.3	23.7	0.71
1700	3.3	225	50	2.1	227	37	22.7	23.5	23.8	0.43
1800	3.3	235	91	1.5	247	55	22.3	22.5	22.0	0.14
1900	3.0	212	60	0.7	222	41	21.1	19.0	16.4	0.01
2000	1.3	211	61	0.4	325	33	18.9	15.8	13.1	0.0
2100	1.2	221	53	0.3	275	39	16.8	14.0	11.6	0.0
2200	1.7	160	31	0.2	329	58	15.0	12.9	10.5	0.0
2300	0.6	127	49	0.4	339	60	14.0	11.7	9.6	0.0
2400	0.7	205	58	0.4	345	45	13.0	11.3	9.1	0.0

* INDICATES LOST RECORDS

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
OCTOBER 6, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	4.4	18	81	0.9	322	29	6.2	5.1	2.6
200	5.1	35	71	1.5	43	33	6.1	5.4	3.8
300	4.2	42	47	1.0	327	39	6.1	4.8	2.0
400	4.6	24	100	0.7	349	54	5.8	4.2	1.4
500	4.0	36	88	0.8	329	55	5.0	3.7	1.4
600	4.6	32	96	0.8	327	65	5.4	3.2	1.0
700	4.3	33	99	0.7	326	48	4.9	2.5	-0.1
800	4.6	43	81	1.4	30	42	5.3	4.5	3.2
900	4.2	34	52	2.6	36	48	5.8	6.4	6.8
1000	4.9	65	58	4.0	68	49	7.8	8.7	9.5
1100	3.6	29	63	2.7	23	36	9.4	10.5	11.5
1200	3.2	30	59	2.5	19	40	11.2	12.3	13.4
1300	2.9	351	28	2.4	354	26	12.8	13.7	14.8
1400	*****	****	***	*****	****	***	*****	*****	*****
1500	4.5	15	61	3.3	22	39	15.2	16.3	17.3
1600	3.7	44	60	2.9	49	42	15.9	16.8	17.7
1700	2.5	53	51	2.0	57	42	16.5	17.3	17.8
1800	1.2	37	53	0.6	23	80	16.4	16.5	15.2
1900	1.5	116	62	0.4	80	60	15.5	11.8	9.4
2000	1.4	111	89	0.3	80	93	14.4	9.0	6.2
2100	1.6	52	67	0.4	349	79	14.4	8.1	4.9
2200	1.9	26	39	0.4	301	54	13.9	7.0	4.3
2300	2.3	61	74	0.2	347	100	13.5	6.1	3.5
2400	2.3	46	69	0.3	347	55	13.3	5.4	2.7

* INDICATES LOST RECORDS

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
OCTOBER 7, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	2.2	20	67	0.2	****	***	13.0	5.0	2.3
200	1.7	29	56	0.3	163	70	12.5	4.3	1.8
300	1.0	83	68	0.2	****	***	12.2	4.1	1.7
400	0.4	214	68	0.3	****	***	11.4	4.0	1.5
500	1.5	292	53	0.2	****	***	11.3	4.4	1.5
600	0.6	327	77	0.2	****	***	10.8	3.2	0.9
700	0.5	200	100	0.1	****	***	11.2	3.1	0.6
800	0.7	285	85	0.0	****	***	11.2	5.0	3.2
900	1.2	281	67	0.3	****	72	11.6	10.6	10.4
1000	2.3	254	63	1.8	258	38	13.9	14.7	15.0
1100	3.2	255	58	2.4	253	37	14.9	15.9	16.5
1200	3.1	257	53	2.3	255	30	15.7	16.8	17.3
1300	2.3	247	29	1.7	265	22	16.9	17.8	18.4
1400	2.0	255	32	1.5	262	20	18.1	19.1	19.8
1500	2.1	247	40	1.6	236	21	19.1	20.1	20.8
1600	2.8	245	49	1.9	233	32	20.3	21.2	21.7
1700	2.5	227	41	1.5	218	26	20.5	21.3	21.6
1800	3.2	231	92	1.2	236	40	20.2	20.2	16.9
1900	4.2	233	100	0.8	243	65	19.3	17.0	13.3
2000	5.2	220	100	0.9	228	68	18.8	16.0	11.1
2100	5.5	226	100	1.1	228	82	18.5	15.7	10.2
2200	5.1	240	100	0.6	247	93	18.3	14.7	9.5
2300	5.0	241	100	0.4	256	89	18.1	13.4	8.5
2400	6.0	234	100	0.8	235	59	17.4	14.0	8.2

* INDICATES LOST RECORDS

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Table C-2

METEOROLOGICAL TOWER DATA
WIDOWS CREEK STEAM PLANT

October 9, 1980
October 10, 1980

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA VALLEY
OCTOBER 9, 1980

	61-METER WINDS			10-METER WINDS						
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	0.4	64	45	0.5	35	62	15.3	14.3	11.8	0.0
200	0.4	90	100	0.4	306	46	15.0	13.5	11.4	0.0
300	0.5	90	100	0.4	326	68	14.0	12.7	11.1	0.0
400	1.1	48	48	0.7	359	78	13.2	12.2	11.3	0.0
500	1.1	53	81	0.9	11	88	12.6	11.7	10.4	0.0
600	0.7	59	62	0.5	305	40	12.2	11.4	9.7	0.0
700	0.5	86	100	0.6	310	57	12.0	10.9	9.5	0.0
800	0.8	66	62	0.8	350	45	11.5	11.0	11.1	0.06
900	0.4	70	43	0.3	312	49	11.9	12.1	12.3	0.24
1000	0.5	47	40	0.8	134	38	13.8	14.4	14.8	0.62
1100	1.1	203	34	1.3	164	36	17.7	18.3	18.9	0.88
1200	3.5	223	64	2.6	242	35	21.3	22.3	23.0	1.01
1300	3.9	207	61	2.8	211	39	23.4	24.4	25.2	1.06
1400	3.5	206	52	2.4	202	26	24.9	25.9	26.6	1.02
1500	3.7	206	66	2.5	206	35	26.0	27.1	27.6	0.90
1600	*****	****	***	*****	****	***	*****	*****	*****	******
1700	*****	****	***	*****	****	***	*****	*****	*****	******
1800	2.6	201	100	0.4	156	56	25.8	24.8	22.6	0.03
1900	2.8	197	88	0.6	265	51	24.9	22.8	19.9	0.0
2000	1.0	247	32	0.4	44	46	22.7	19.4	17.2	0.0
2100	1.0	196	39	0.3	287	48	21.3	17.9	15.9	0.0
2200	0.9	203	69	0.1	****	***	18.9	17.0	15.0	0.0
2300	0.4	216	45	0.3	****	***	17.6	16.2	14.2	0.0
2400	0.4	207	51	0.4	****	***	17.1	15.7	13.6	0.0

* INDICATES LOST RECORDS

WIDOWS CREEK STEAM PLANT
METEOROLOGICAL TOWER DATA VALLEY
OCTOBER 10, 1980

	61-METER WINDS			10-METER WINDS						
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	0.3	****	***	0.2	****	***	17.1	15.0	13.2	0.0
200	0.2	****	***	0.3	****	***	15.9	14.7	12.9	0.0
300	0.4	****	***	0.3	****	***	15.3	14.4	12.6	0.0
400	0.4	****	***	0.5	336	90	15.0	13.9	12.6	0.0
500	0.8	56	87	0.6	354	50	14.6	13.7	12.2	0.0
600	1.5	67	100	0.4	303	56	14.3	13.2	11.8	0.0
700	0.5	115	81	0.6	319	50	13.9	13.1	12.1	0.0
800	0.4	61	86	0.6	298	37	13.7	13.1	13.1	0.06
900	0.3	100	52	0.4	278	31	14.2	14.3	14.5	0.21
1000	1.1	211	50	1.0	175	24	15.8	16.0	16.4	0.50
1100	2.5	205	72	2.1	176	40	19.6	20.5	20.9	0.84
1200	2.1	214	57	2.4	212	33	23.0	23.9	24.6	0.97
1300	4.2	210	62	2.4	190	41	25.2	26.1	26.8	0.96
1400	4.6	200	83	2.6	190	46	26.5	27.5	28.1	1.01
1500	3.9	210	62	2.5	214	33	27.4	28.4	28.9	0.79
1600	4.9	238	50	2.8	244	34	27.9	28.7	29.0	0.65
1700	2.6	233	68	3.0	235	41	27.7	28.4	28.5	0.40
1800	4.1	225	76	1.6	237	44	26.8	26.8	26.1	0.12
1900	3.4	212	100	0.4	****	***	25.2	23.0	20.6	0.0
2000	1.8	210	100	0.5	264	46	24.2	20.5	18.0	0.0
2100	2.5	225	94	0.2	****	***	22.1	18.7	16.7	0.0
2200	2.9	224	98	0.7	173	24	20.6	17.9	15.8	0.0
2300	2.3	236	100	0.3	21	49	20.1	17.3	15.2	0.0
2400	2.8	227	100	0.4	275	40	19.5	16.5	14.7	0.0

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
OCTOBER 9, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	4.8	240	81	0.6	165	57	18.6	15.6	11.1
200	4.2	243	100	0.2	109	80	17.8	13.6	10.5
300	4.2	240	100	0.1	109	100	17.6	12.9	9.6
400	2.5	277	70	0.2	109	100	17.7	12.6	9.4
500	1.4	267	100	0.1	108	100	17.8	10.7	8.7
600	1.7	238	55	0.3	108	100	17.3	10.9	8.4
700	2.7	230	100	0.2	108	100	16.9	11.2	6.4
800	2.6	224	93	0.3	110	100	16.9	11.7	9.9
900	2.1	218	67	0.4	112	67	17.0	16.5	16.1
1000	3.6	237	56	2.2	224	36	19.5	20.3	20.6
1100	4.2	238	67	2.6	237	36	20.7	21.9	22.3
1200	3.9	228	60	2.7	223	36	21.0	22.3	22.8
1300	3.1	250	47	2.3	254	27	22.2	23.2	23.8
1400	2.7	218	35	2.0	218	26	23.1	24.2	24.8
1500	3.4	222	41	2.4	247	29	23.8	24.9	25.4
1600	3.3	230	51	2.1	220	37	24.3	25.3	25.7
1700	3.2	223	63	2.0	224	36	24.4	25.1	25.3
1800	3.2	192	92	0.9	183	59	24.0	24.0	22.4
1900	4.2	199	100	0.7	208	68	23.5	20.7	17.0
2000	4.6	211	99	0.7	230	60	23.1	18.9	14.5
2100	4.9	223	100	0.8	229	93	22.7	18.7	13.5
2200	5.7	226	100	1.0	227	87	22.1	18.6	13.5
2300	5.7	230	100	0.9	234	88	21.5	18.3	13.2
2400	4.9	227	100	0.8	229	91	21.0	17.9	13.3

* INDICATES LOST RECORDS

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
OCTOBER 10, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	5.4	230	100	0.8	235	98	21.1	17.4	13.0
200	5.5	234	100	0.6	248	88	20.6	17.7	13.1
300	5.0	235	100	0.5	243	97	20.0	16.7	12.9
400	4.5	232	100	0.3	239	100	19.3	15.7	12.3
500	4.6	240	92	0.4	243	60	19.2	15.6	12.2
600	4.5	246	100	0.3	241	98	18.8	14.7	11.6
700	4.2	240	98	0.4	232	100	18.4	14.1	11.1
800	2.5	266	81	0.3	231	100	18.9	14.5	12.8
900	1.3	234	63	0.5	112	65	18.5	17.9	17.8
1000	1.7	249	49	1.3	254	27	20.7	21.4	21.7
1100	2.2	260	40	1.7	253	27	22.0	22.9	23.3
1200	2.7	260	54	2.3	245	38	22.8	23.7	24.2
1300	*****	****	***	*****	****	***	*****	*****	*****
1400	3.6	261	43	2.4	238	28	24.4	25.6	26.1
1500	4.1	237	37	2.5	228	30	25.0	26.1	26.5
1600	5.1	240	55	3.0	233	40	25.2	26.2	26.5
1700	4.6	239	64	2.5	232	36	25.0	25.6	25.8
1800	4.2	230	88	1.4	232	48	24.3	24.0	23.0
1900	5.1	229	99	1.1	227	69	23.6	21.8	18.2
2000	5.1	229	100	0.8	223	59	23.1	20.4	16.1
2100	5.2	228	100	0.9	228	76	22.6	19.3	14.8
2200	5.5	226	100	1.1	225	86	21.8	19.1	14.4
2300	5.2	225	100	1.0	228	73	21.4	18.8	14.5
2400	5.2	230	100	0.8	231	98	20.8	18.1	13.9

* INDICATES LOST RECORDS

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Table C-3

METEOROLOGICAL TOWER DATA
WIDOWS CREEK STEAM PLANT

October 31, 1980
November 1, 1980

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA VALLEY
OCTOBER 31, 1980

HOUR ENDING (CDT)	61-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	0.4	25	86	0.8	358	43	5.1	5.1	5.3	0.0
200	1.2	29	66	1.0	347	51	4.4	3.8	3.9	0.0
300	1.7	28	47	1.3	356	45	3.5	3.2	3.4	0.0
400	1.2	35	49	0.9	326	53	2.8	2.7	2.9	0.0
500	1.4	9	56	1.2	3	44	2.1	2.3	2.5	0.0
600	2.3	29	71	1.7	2	56	1.5	1.6	1.8	0.0
700	1.8	37	47	1.4	3	55	1.1	1.3	1.5	0.02
800	1.7	15	62	1.4	356	58	0.9	1.3	1.6	0.09
900	0.6	356	20	0.8	258	22	1.9	2.3	2.7	0.36
1000	0.9	231	21	1.0	163	23	4.7	5.8	6.3	0.75
1100	1.2	174	32	1.3	146	36	8.9	9.7	10.3	0.93
1200	1.7	167	41	1.7	167	31	11.5	12.2	12.9	0.96
1300	2.1	187	50	1.8	190	37	13.9	14.7	15.4	0.92
1400	3.3	192	74	2.3	184	48	15.4	16.5	17.2	0.73
1500	3.0	198	53	2.1	189	32	16.0	16.9	17.4	0.58
1600	4.0	307	60	2.4	317	48	16.4	16.9	17.0	0.31
1700	2.6	322	74	1.2	308	61	15.9	15.5	13.4	0.07
1800	1.5	286	63	0.5	275	43	14.8	11.2	8.1	0.0
1900	0.8	84	39	0.4	48	28	12.5	9.0	5.6	0.0
2000	0.8	96	37	0.4	282	42	10.6	7.6	4.4	0.0
2100	1.9	208	80	0.4	341	43	8.7	6.8	3.3	0.0
2200	1.3	189	70	0.4	343	70	7.5	5.7	2.7	0.0
2300	0.7	145	48	0.4	352	67	6.6	5.0	2.1	0.0
2400	0.8	50	57	0.7	22	48	5.8	4.1	1.5	0.0

* INDICATES LOST RECORDS

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BEST DOCUMENT AVAILABLE

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA VALLEY
NOVEMBER 1, 1980

	61-METER WINDS			10-METER WINDS						
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	0.6	56	42	0.6	341	52	5.4	3.6	1.2	0.0
200	0.4	92	100	0.6	356	49	4.6	3.1	0.6	0.0
300	1.3	63	86	1.0	359	74	4.0	2.2	0.5	0.0
400	0.8	67	100	0.7	318	54	3.6	2.0	0.1	0.0
500	0.6	74	97	0.8	342	51	3.4	1.7	-0.2	0.0
600	1.1	64	76	1.0	0	33	3.1	1.5	0.0	0.0
700	0.7	68	100	0.9	329	39	2.8	1.4	-0.1	0.04
800	1.0	59	75	0.7	341	33	3.5	3.3	3.3	0.22
900	0.4	5	28	0.6	320	14	6.0	6.7	7.0	0.56
1000	1.0	171	32	1.2	135	37	9.4	9.9	10.4	0.77
1100	2.1	219	42	1.9	171	24	13.5	14.2	14.8	0.89
1200	3.0	210	53	2.3	186	28	16.6	17.4	18.1	0.93
1300	4.2	215	76	3.1	217	44	18.0	19.0	19.7	0.89
1400	4.2	214	82	3.2	214	49	19.4	20.4	21.0	0.75
1500	4.2	218	82	2.8	225	48	20.1	21.0	21.4	0.53
1600	3.9	212	87	2.3	217	48	20.4	20.9	21.0	0.28
1700	2.9	218	86	1.0	235	36	20.3	19.7	17.5	0.06
1800	3.7	214	97	0.9	247	56	19.5	15.7	12.4	0.0
1900	3.7	209	98	0.2	156	27	18.2	13.6	10.3	0.0
2000	4.0	223	100	0.8	192	24	16.6	12.0	8.6	0.0
2100	1.7	38	61	0.8	27	64	13.4	10.8	8.1	0.0
2200	0.5	39	62	0.7	317	25	12.4	9.4	6.8	0.0
2300	0.2	4	66	0.4	308	50	11.1	8.4	5.8	0.0
2400	1.3	55	65	0.6	31	41	9.7	8.0	4.9	0.0

* INDICATES LOST RECORDS

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
OCTOBER 31, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	3.1	351	98	1.0	328	72	5.8	4.1	0.9
200	3.8	355	93	1.4	340	68	6.0	4.2	0.7
300	3.5	351	100	1.8	343	68	5.9	4.5	2.3
400	2.2	354	88	0.7	357	25	4.3	1.8	-0.4
500	2.2	351	94	0.6	279	40	3.9	-0.8	-2.2
600	2.7	7	83	0.4	282	47	2.9	-1.5	-3.1
700	2.3	24	55	0.3	16	68	2.4	-0.9	-2.9
800	1.7	42	60	0.8	17	36	3.1	3.1	2.3
900	2.8	32	75	2.5	43	58	4.9	5.6	6.1
1000	2.4	31	44	2.2	42	33	6.9	7.7	8.5
1100	2.7	353	36	2.3	357	37	8.7	9.5	10.5
1200	2.2	342	39	1.9	351	37	10.5	11.3	12.1
1300	2.2	331	36	1.7	355	33	12.2	13.0	13.8
1400	2.9	289	37	2.1	250	26	13.4	14.3	14.9
1500	3.5	264	54	2.4	254	32	13.9	14.9	15.4
1600	4.4	296	65	2.2	293	34	13.9	14.6	14.7
1700	3.9	304	82	1.4	308	43	13.3	13.1	11.9
1800	2.4	312	54	0.7	318	48	12.8	11.5	7.0
1900	2.3	284	76	0.4	230	21	12.2	7.7	4.3
2000	1.8	274	88	0.4	258	85	12.3	5.3	2.4
2100	2.9	276	97	0.4	286	68	12.1	7.4	2.0
2200	3.0	278	100	0.8	270	51	11.8	8.7	2.3
2300	3.5	278	79	1.0	272	67	11.2	8.3	2.3
2400	4.5	299	89	1.2	290	61	11.3	8.6	2.7

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
NOVEMBER 1, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	4.0	311	100	0.7	305	48	11.2	6.9	1.8
200	2.7	296	77	0.4	271	52	10.6	3.4	0.6
300	3.2	322	99	0.4	207	30	10.5	2.6	0.0
400	3.1	312	99	0.4	261	84	9.7	2.7	-0.2
500	2.6	309	79	0.3	263	85	9.7	2.6	-0.4
600	2.8	324	90	0.1	256	100	10.4	2.7	-0.4
700	1.8	322	92	0.3	11	41	10.4	3.1	0.2
800	1.5	334	60	0.5	6	32	10.7	9.0	7.3
900	1.5	301	29	1.1	346	29	12.1	12.8	13.1
1000	1.8	293	30	1.6	352	21	13.5	14.3	14.8
1100	1.8	300	26	1.4	347	18	14.7	15.5	16.2
1200	2.8	258	37	2.1	249	27	16.1	17.0	17.7
1300	3.4	250	63	2.5	241	33	17.1	18.2	18.8
1400	3.4	246	66	2.3	241	36	17.9	19.0	19.5
1500	3.7	239	69	2.3	237	39	18.4	19.4	19.8
1600	4.2	245	86	2.2	242	47	18.4	19.1	19.2
1700	3.9	259	91	1.4	256	76	18.1	17.4	15.5
1800	5.4	250	90	1.5	259	83	17.7	15.7	11.2
1900	6.2	249	100	1.8	257	75	17.0	15.0	11.4
2000	5.0	261	100	1.5	254	74	16.4	14.5	10.2
2100	4.0	277	70	1.1	290	59	16.4	14.8	9.2
2200	3.8	299	100	1.1	291	81	16.2	13.9	8.1
2300	3.7	288	97	0.8	296	56	15.6	11.5	6.1
2400	2.3	316	91	0.3	318	62	14.3	8.2	5.2

* INDICATES LOST RECORDS

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Table C-4

METEOROLOGICAL TOWER DATA
WIDOWS CREEK STEAM PLANT

December 14, 1980
December 15, 1980

WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA VALLEY
DECEMBER 14, 1980

HOUR ENDING (CDT)	61-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	2.3	349	62	0.9	347	51	4.0	2.8	-0.6	0.0
200	2.4	2	71	0.8	356	32	3.6	2.6	-1.2	0.0
300	0.9	142	28	0.7	274	25	2.5	1.1	-1.5	0.0
400	2.0	32	58	1.1	22	59	2.3	0.9	-2.5	0.0
500	2.1	42	74	1.1	8	82	1.6	0.0	-2.8	0.0
600	1.7	24	51	0.8	23	51	0.7	-0.4	-3.1	0.0
700	2.9	50	81	1.0	334	48	0.3	-1.4	-3.7	0.01
800	2.2	13	65	0.8	355	40	-0.3	-1.4	-3.1	0.09
900	1.0	122	21	0.7	88	19	0.4	0.5	0.6	0.38
1000	1.7	42	37	1.5	118	43	1.6	2.2	2.6	0.53
1100	2.1	66	65	1.7	101	29	3.5	4.3	4.9	0.73
1200	1.8	66	46	1.6	83	27	5.9	6.7	7.3	0.77
1300	1.9	67	62	1.7	101	38	7.7	8.6	9.2	0.71
1400	1.4	74	50	1.1	115	38	9.1	9.8	10.3	0.47
1500	1.5	70	24	1.3	148	29	10.2	11.0	11.4	0.52
1600	1.3	208	65	1.1	206	54	10.7	11.1	11.0	0.18
1700	1.1	120	30	0.5	224	31	10.0	8.8	5.9	0.02
1800	0.9	360	22	0.4	356	43	8.9	6.4	2.6	0.0
1900	0.7	32	34	0.7	235	34	6.7	4.4	1.2	0.0
2000	1.5	208	63	0.4	22	33	5.6	3.4	-0.1	0.0
2100	0.7	80	29	0.3	26	58	4.1	2.3	-1.0	0.0
2200	0.8	46	42	0.8	332	28	3.1	1.2	-1.7	0.0
2300	2.3	36	69	1.4	27	73	1.9	0.4	-1.8	0.0
2400	1.8	53	80	1.0	4	56	1.3	-0.2	-2.2	0.0

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT *
METEORLOGICAL TOWER DATA VALLEY
DECEMBER 15, 1980

HOUR ENDING (CUT)	61-METER WINDS WIND SPEED (M/S)	61-METER WINDS WIND DIRECTION (DEG)	61-METER WINDS PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	10-METER WINDS WIND DIRECTION (DEG)	10-METER WINDS PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)	SOLAR RADIATION (LY/MIN)
100	1.4	50	57	0.8	21	76	0.3	-0.4	-2.5	0.0
200	1.4	36	42	0.9	15	40	0.0	-1.0	-2.7	0.0
300	0.7	66	78	0.7	309	39	-0.5	-1.3	-3.2	0.0
400	0.4	150	49	0.7	325	59	-1.0	-1.9	-3.7	0.0
500	0.6	172	52	1.0	315	39	-1.2	-2.1	-4.0	0.0
600	1.6	65	60	1.0	24	38	-1.4	-2.4	-3.7	0.0
700	0.9	61	43	0.8	290	36	-1.4	-2.3	-3.3	0.0
800	0.4	185	63	0.7	304	39	-1.5	-2.1	-2.6	0.09
900	0.8	62	29	0.8	356	43	-1.0	-0.7	-0.5	0.20
1000	1.1	44	15	0.9	358	25	0.9	1.5	1.8	0.49
1100	1.3	259	27	1.3	268	19	3.4	4.1	4.5	0.53
1200	2.9	259	15	1.0	153	21	5.5	6.1	6.5	0.36
1300	2.4	215	45	1.9	209	36	7.1	7.8	8.4	0.49
1400	3.3	231	57	2.2	227	38	8.5	9.2	9.5	0.23
1500	3.4	204	93	2.3	207	65	9.0	9.5	9.6	0.10
1600	5.0	214	96	2.4	215	62	10.1	10.3	10.2	0.03
1700	4.7	222	99	2.0	221	63	10.1	10.1	9.9	0.0
1800	4.5	209	80	2.0	215	49	10.1	10.1	9.8	0.0
1900	4.4	211	77	2.2	231	51	10.2	10.3	10.1	0.0
2000	4.8	226	94	2.2	240	62	10.2	10.2	10.0	0.0
2100	3.4	227	75	1.4	246	40	9.7	9.6	9.4	0.0
2200	3.3	218	80	1.0	240	37	9.4	9.1	8.6	0.0
2300	4.4	210	85	1.8	216	45	9.5	9.4	8.9	0.0
2400	2.4	215	73	1.0	227	32	9.1	9.0	7.9	0.0

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
DECEMBER 14, 1980

	61-METER WINDS			10-METER WINDS					
HOUR ENDING (CDT)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	4.8	351	73	2.3	347	52	2.1	2.0	1.5
200	4.1	2	83	2.3	353	68	1.4	1.5	1.1
300	3.4	3	79	1.6	358	50	0.6	0.7	0.2
400	4.3	2	93	2.3	356	75	0.2	0.1	-0.4
500	4.4	11	100	1.4	1	76	-0.3	-0.7	-1.4
600	3.9	20	70	1.3	19	46	-1.1	-1.3	-2.2
700	3.7	35	78	1.8	30	58	-1.3	-1.7	-2.7
800	4.0	3	65	2.2	354	67	-1.9	-1.5	-1.5
900	3.2	8	71	2.1	356	65	-1.2	-0.5	-0.2
1000	2.8	17	58	2.4	48	39	0.7	1.4	2.1
1100	3.6	36	69	3.3	45	62	2.8	3.6	4.5
1200	3.1	21	43	2.6	352	29	4.7	5.5	6.4
1300	4.2	21	57	3.2	17	37	6.4	7.3	8.3
1400	2.7	23	47	2.2	38	40	7.3	8.1	8.7
1500	2.5	11	40	2.1	27	27	8.5	9.3	10.0
1600	1.3	295	39	0.9	303	34	8.5	9.0	8.9
1700	0.8	286	69	0.4	297	56	8.0	6.3	4.0
1800	1.3	62	58	0.4	209	34	8.1	3.8	0.0
1900	1.5	265	46	0.8	262	71	7.7	3.8	-1.3
2000	3.7	254	92	1.1	260	63	6.9	4.6	-1.3
2100	3.0	266	92	0.8	270	71	6.3	4.4	-1.3
2200	2.8	256	92	0.4	227	44	6.4	1.9	-2.2
2300	1.1	10	34	0.5	354	67	5.9	0.8	-3.0
2400	0.5	80	87	0.5	261	85	5.6	-0.5	-3.5

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT
METEORLOGICAL TOWER DATA MOUNTAIN
DECEMBER 15, 1980

HOUR ENDING (CDT)	61-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	10-METER WINDS WIND SPEED (M/S)	WIND DIRECTION (DEG)	PERSISTANCE (%)	TEMP 61-METER (DEG C)	TEMP 10-METER (DEG C)	TEMP 1-METER (DEG C)
100	0.6	302	60	0.4	263	56	5.9	0.4	-3.7
200	0.8	276	48	0.4	259	46	6.0	0.1	-3.8
300	1.7	286	85	0.3	295	33	6.3	0.0	-3.7
400	2.2	132	40	0.5	156	67	4.9	-1.8	-4.5
500	2.1	180	42	0.7	289	36	5.5	-0.2	-4.4
600	1.7	209	71	0.4	256	36	5.6	-0.8	-4.4
700	2.4	202	69	0.6	239	43	5.0	-0.5	-3.5
800	3.8	214	65	0.6	265	42	4.7	0.9	-2.1
900	3.0	202	59	1.0	214	31	4.2	4.1	2.9
1000	3.0	206	39	2.0	219	35	5.3	6.2	6.4
1100	4.3	187	51	2.7	189	29	6.5	7.5	7.6
1200	4.2	194	55	2.5	200	28	7.5	8.3	8.6
1300	5.3	205	59	3.0	210	36	8.0	9.0	9.3
1400	6.0	210	48	3.4	218	33	8.1	8.9	9.1
1500	3.7	222	39	2.2	224	35	7.5	8.2	8.3
1600	3.4	201	52	1.7	207	37	8.1	8.5	8.5
1700	3.6	195	67	1.5	190	37	7.9	8.3	8.2
1800	4.0	195	67	1.9	197	36	7.7	8.1	8.0
1900	5.1	198	64	2.2	204	38	7.8	8.2	8.1
2000	5.0	217	61	2.5	224	45	8.0	8.4	8.3
2100	4.7	229	68	2.1	226	46	7.9	8.0	7.9
2200	5.1	230	74	2.4	232	46	7.8	8.1	6.0
2300	4.4	230	73	2.1	223	52	7.6	7.7	7.5
2400	4.6	238	82	2.1	237	53	7.5	7.7	7.5

* INDICATES LOST RECORDS

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WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
OCTOBER 6, 1980

Type: Aircraft
Time: 0830 CDT

Height (m-AGL)	Temperature (°C)
61	5.3
122	4.5
183	5.1
244	6.2
305	6.2
366	5.7
427	5.6
488	5.1
549	5.8
610	5.9
762	8.5
914	9.8
1067	8.9
1219	7.7
1372	6.6
1524	5.8
1676	5.3
1829	5.5

Type: Aircraft
Time: 1227 CDT

Height (m-AGL)	Temperature (°C)
61	14.5
122	13.5
183	13.2
244	12.4
305	11.8
366	11.2
427	10.7
488	10.1
549	9.6
610	8.9
762	8.6
914	8.6
1067	8.6
1219	7.5
1372	7.0
1524	6.1
1676	5.9
1829	5.5

Type: Aircraft
Time: 2030 CDT

Height (m-AGL)	Temperature (°C)
61	12.8
122	13.5
183	13.1
244	12.9
305	12.8
366	12.5
427	12.2
488	11.7
549	11.3
610	11.0
762	9.7
914	8.5
1067	7.3
1219	7.9
1372	8.4
1524	9.2
1676	9.4
1829	9.2

C-5b

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
OCTOBER 7, 1980

Type: Aircraft
Time: 0429 CDT

Height (m-AGL)	Temperature (°C)
61	5.9
122	6.2
183	7.8
244	10.2
305	11.3
366	11.7
427	12.4
488	12.3
549	12.0
610	12.0
762	11.0
914	10.9
1067	12.0
1219	11.6
1372	11.6
1542	11.2
1676	10.6
1829	9.8

Type: Aircraft
Time: 0830 CDT

Height (m-AGL)	Temperature (°C)
61	4.9
122	5.3
183	6.5
244	7.8
305	10.6
366	12.8
427	13.5
488	13.1
549	12.8
610	12.4
762	12.5
914	13.2
1067	13.4
1219	12.8
1372	12.3
1542	11.1
1676	10.4
1829	9.9

Type: Aircraft
Time: 1232 CDT

Height (m-AGL)	Temperature (°C)
61	18.9
122	18.6
183	18.2
244	17.5
305	16.9
366	15.9
427	15.9
488	15.3
549	14.8
610	14.9
762	13.4
914	14.9
1067	14.2
1219	13.3
1372	12.8
1542	13.5
1676	12.1
1829	10.9

C-6a

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
OCTOBER 9, 1980

Type: Aircraft Time: 0002 CDT		Type: Aircraft Time: 1000 CDT		Type: Aircraft Time: 1229 CDT		Type: Aircraft Time: 2028 CDT	
Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)
61	15.3	61	15.0	61	23.2	61	21.6
122	18.9	122	14.7	122	23.1	122	22.0
183	19.2	183	15.1	183	22.5	183	22.4
244	19.5	244	17.4	244	21.6	244	22.2
305	19.5	305	18.6	305	21.3	305	22.1
366	19.7	366	18.8	366	20.7	366	22.2
427	19.4	427	19.1	427	20.2	427	21.7
488	19.3	488	18.8	488	20.2	488	21.3
549	18.9	549	18.5	549	19.9	549	20.7
610	18.4	610	18.2	610	19.2	610	20.3
762	16.9	762	17.1	762	18.5	762	19.2
914	15.7	914	16.5	914	18.4	914	17.8
1067	14.7	1067	15.4	1067	16.2	1067	16.3
1219	13.9	1219	14.5	1219	15.2	1219	14.9
1372	12.9			1372	14.0	1372	13.6
1524	12.7			1524	13.2	1524	12.5
1676	12.7			1676	11.7	1676	12.7
1829	12.6			1829	12.8	1829	12.4

C-6b

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
OCTOBER 10, 1980

Type: Radiosonde
Time: 0345 CDT

Height (m-AGL)	Temperature (°C)
146	15.5
197	16.1
241	17.3
291	18.8
390	19.4
436	20.9
537	21.4
634	20.7
733	20.2
834	19.9
934	19.4
1037	18.4
1135	17.3
1239	16.5
1339	15.7
1444	14.7
1546	14.1
1650	13.2
1754	12.9

C-7a

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
OCTOBER 31, 1980

Type: Aircraft		Type: Aircraft		Type: Aircraft	
Time: 1000 CST		Time: 1235 CST		Time: 2024 CST	
Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)
61	6.1	61	14.3	61	8.9
122	5.8	122	13.8	122	10.2
183	5.8	183	13.4	183	11.5
244	5.6	244	12.7	244	11.7
305	5.5	305	12.0	305	11.5
366	6.0	366	11.4	366	10.8
427	6.7	427	11.2	427	10.5
488	6.9	488	10.9	488	10.1
549	6.9	549	10.0	549	9.7
610	7.3	610	10.3	610	9.6
762	8.6	762	9.2	762	8.9
914	8.7	914	8.5	914	7.7
1067	8.8	1067	7.0	1067	6.3
1219	9.1	1219	7.5	1219	5.8
1372	8.2	1372	8.6	1372	6.2
1524	7.6	1524	8.8	1524	6.0
1676	7.3	1676	9.0	1676	5.3
1829	7.6	1829	8.6	1829	6.1

C-7b

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
NOVEMBER 1, 1980

Type: Aircraft		Type: Aircraft		Type: Aircraft		Type: Aircraft	
Time: 0020 CST		Time: 0430 CST		Time: 0831 CST		Time: 1224 CST	
Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)
61	5.7	61	3.4	61	6.4	61	17.6
122	7.3	122	5.2	122	6.4	122	17.5
183	8.5	183	7.0	183	6.7	183	17.1
244	10.2	244	8.9	244	9.3	244	16.3
305	10.9	305	11.6	305	11.4	305	15.7
366	10.7	366	11.6	366	11.9	366	15.6
427	11.0	427	11.6	427	12.2	427	15.9
488	10.9	488	11.5	488	12.3	488	15.3
549	11.3	549	11.7	549	12.2	549	15.0
610	11.1	610	11.5	610	12.4	610	14.9
762	10.1	762	10.9	762	12.7	762	13.6
914	9.7	914	11.8	914	14.1	914	12.5
1067	10.6	1067	11.8	1067	13.4	1067	11.3
1219	9.8	1219	11.2	1219	13.2	1219	12.5
1372	8.7	1372	11.3	1372	12.1	1372	12.1
1524	7.8	1524	10.3	1524	11.0	1524	11.1
1676	7.1	1676	9.5	1676	9.7	1676	10.2
1829	8.0	1829	8.7	1829	8.5	1829	8.7

C-8a

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
DECEMBER 14, 1980

Type: Aircraft		Type: Aircraft		Type: Aircraft		Type: Aircraft	
Time: 0435 CST		Time: 0838 CST		Time: 1234 CST		Time: 2045 CST	
Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)	Height (m-AGL)	Temperature (°C)
61	1.6	61	0.6	61	8.0	61	4.2
122	1.6	122	0.0	122	7.8	122	4.7
183	1.3	183	-0.7	183	7.4	183	4.8
244	1.0	244	-0.5	244	6.8	244	6.2
305	0.3	305	-1.1	305	6.2	305	6.0
366	0.3	366	-0.9	366	5.9	366	6.2
427	0.4	427	-0.5	427	5.5	427	6.1
488	1.4	488	1.1	488	5.1	488	5.7
549	2.2	549	1.4	549	4.6	549	5.4
610	4.6	610	2.3	610	4.7	610	5.2
762	4.3	762	2.1	762	4.1	762	4.4
914	3.4	914	2.1	914	3.8	914	3.7
1067	3.3	1067	2.3	1067	2.8	1067	3.1
1219	3.8	1219	2.4	1219	3.8	1219	2.4
1372	4.4	1372	3.0	1372	3.3	1372	2.0
1524	5.4	1524	2.5	1524	2.6	1524	1.7
1676	4.8	1676	2.8	1676	1.8	1676	0.8
1829	4.3	1829	2.9	1829	1.5	1829	0.3

Table C-8b

WIDOWS CREEK STEAM PLANT
TEMPERATURE PROFILE
DECEMBER 15, 1980

Type: Aircraft
Time: 0435 CST

Height (m-AGL)	Temperature (^{o}C)
61	-1.3
122	0.1
183	1.1
244	4.6
305	6.4
366	6.8
427	6.5
488	6.4
549	6.2
610	6.1
762	5.7
914	5.6
1067	5.4
1219	4.0
1372	2.8
1524	1.2
1676	1.2
1829	0.4

Table C-9a

WIDOWS CREEK STEAM PLANT
WIND PROFILE
OCTOBER 6, 1980

Type: Pibal Time: 0700 CDT			Type: Pibal Time: 1100 CDT			Type: Pibal Time: 1500 CDT			Type: Pibal Time: 1900 CDT			Type: Pibal Time: 2300 CDT		
Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	36	3.4	76	26	1.8	76	73	2.7	76	43	0.9	76	34	2.1
222	40	6.6	222	40	3.5	222	47	2.4	222	73	0.6	222	51	2.8
362	48	8.5	362	42	4.0	362	53	3.0	362	10	0.9	362	58	2.7
502	59	9.1	502	54	5.3	502	51	2.9	502	310	1.3	502	18	3.3
637	56	9.8	637	69	6.2				637	329	0.7	637	356	3.1
765	45	5.8	765	47	6.9				765	294	1.0	765	317	2.2
893	40	6.2	893	42	7.0				893	288	1.3	893	301	1.9
1021	31	5.1	1021	36	6.7				1021	301	1.3	1021	20	1.6
1149	32	4.7	1149	36	6.4				1149	7	2.9	1149	9	3.9
1277	28	4.5	1277	41	5.2				1277	354	4.2	1277	358	4.2
1405	29	5.0	1405	33	3.4				1405	5	4.2	1405	347	4.6
1533	21	5.4	1533	22	5.8				1533	14	4.9	1533	357	4.6

C-9b

WIDOWS CREEK STEAM PLANT
WIND PROFILE
OCTOBER 7, 1980

Type: Pibal
Time: 0700 CDT

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	35	2.3
222	30	1.9
362	239	1.4
502	290	2.1
637	297	4.9
765	303	4.5
893	328	4.3
1021	346	5.4
1149	350	7.1
1277	351	6.0
1405	354	4.6
1533	360	5.0

Type: Pibal
Time: 0940 CDT

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	33	0.4
222	231	1.4
362	263	3.2
502	287	4.4
637	302	5.9
765	298	5.2

Type: Pibal
Time: 1100 CDT

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	218	1.5
222	231	2.7
362	258	2.7
502	285	4.6
637	298	6.2
765	305	4.5
893	331	3.5
1021	329	3.4
1149	331	2.2
1277	287	2.6
1405	295	4.1
1533	273	3.6

Table C-10a

WIDOWS CREEK STEAM PLANT
WIND PROFILE
OCTOBER 9, 1980

Type: Pibal Time: 0400 CDT			Type: Pibal Time: 0940 CDT			Type: Pibal Time: 1100 CDT			Type: Pibal Time: 1500 CDT			Type: Pibal Time: 1900 CDT			Type: Pibal Time: 2300 CDT		
Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	36	1.2	76	52	0.9	76	204	2.3	76	209	4.5	76	211	2.6	76	229	1.2
222	216	0.8	222	211	3.1	222	220	3.9	222	213	2.6	222	220	4.8	222	215	5.2
362	278	4.7	362	238	5.4	362	235	4.8	362	230	3.7	362	219	6.1	362	233	6.9
502	282	7.2	502	248	5.9	502	256	4.7	502	246	4.5	502	220	6.0	502	239	9.1
637	283	6.8	637	263	5.1	637	265	3.8	637	263	5.1	637	237	4.4	637	250	7.0
765	290	6.0	765	246	5.2	765	281	3.0	765	272	4.3	765	246	5.3	765	253	6.2
893	295	5.8				893	292	3.0	893	271	2.7	893	255	5.6	893	266	6.6
1021	282	4.4				1021	290	4.4	1021	256	0.2	1021	261	5.5	1021	276	6.4
1149	266	3.9							1149	253	1.0	1149	272	4.6	1149	290	5.5
1277	263	2.3							1277	296	1.0	1277	276	5.0	1277	310	5.2
1405	296	2.3							1405	287	1.7	1405	268	4.3	1405	323	3.1
1533	316	2.6							1533	284	3.5	1533	310	3.9	1533	347	4.6

Table C-10b

WIDOWS CREEK STEAM PLANT
WIND PROFILE
OCTOBER 10, 1980

Type: Pibal
Time: 0230 CDT

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	221	0.7
222	221	2.7
362	244	6.1
502	263	9.2
637	271	9.0
765	279	8.0
893	281	6.8
1021	287	6.8
1149	297	5.3
1277	313	4.6
1405	318	4.0
1533	330	3.0

Table C-11a

WIDOWS CREEK STEAM PLANT
WIND PROFILE
OCTOBER 31, 1980

Type: Pibal			Type: Pibal			Type: Pibal			Type: Pibal			Type: Pibal		
Time: 1100 CST			Time: 1315 CST			Time: 1500 CST			Time: 1900 CST			Time: 2300 CST		
Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)	Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	169	1.6	76	212	3.2	76	308	4.0	76	220	0.1	76	205	1.2
222	237	1.6	222	216	2.4	222	308	3.6	222	264	1.5	222	245	2.9
362	264	1.6	362	211	1.6	362	314	3.6	362	315	1.9	362	310	4.7
502	356	4.4	502	246	1.2	502	313	3.2	502	329	5.6	502	321	8.0
637	2	6.5	637	303	4.1	637	302	2.7	637	330	6.4	637	327	7.5
765	5	5.3				765	325	2.6	765	325	6.7	765	332	7.8
893	346	4.2				893	338	4.4	893	327	8.7	893	347	7.8
1021	325	5.6				1021	347	7.5	1021	335	8.9	1021	7	6.2
1149	318	7.4				1149	345	9.3	1149	350	9.5	1149	359	6.5
1277	309	8.0				1277	340	10.0	1277	351	9.3	1277	352	5.8
1405	303	8.8				1405	331	10.3	1405	345	9.5			
1533	299	8.4				1533	328	9.9	1533	336	9.8			

C-11b

WIDOWS CREEK STEAM PLANT
WIND PROFILE
NOVEMBER 1, 1980

Type: Pibal
Time: 0300 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	53	0.5
222	262	1.1
362	323	6.8
502	320	8.9
637	331	7.8
765	326	6.9
893	325	5.8
1021	337	6.0
1149	342	8.7
1277	352	6.5
1405	348	6.4
1533	355	7.0

Type: Pibal
Time: 0700 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	27	1.6
222	318	0.3
362	325	4.3
502	324	7.7
637	322	6.3
765	310	8.3

Type: Pibal
Time: 1100 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	220	2.3
222	210	2.5
362	230	2.0
502	293	4.5
637	307	6.8
765	307	8.3
893	318	8.4
1021	309	8.0
1149	299	6.9
1277	299	6.8
1405	301	6.7
1533	301	6.7

Table C-12a

WIDOWS CREEK STEAM PLANT
WIND PROFILE
DECEMBER 14, 1980

Type: Pibal
Time: 0300 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	63	1.2
222	16	2.2
362	9	2.9
502	15	5.0
637	356	9.7
765	352	10.1
893	351	11.3
1021	348	11.6
1149	344	11.4
1277	338	10.7
1405	320	10.0
1533	305	10.5

Type: Pibal
Time: 0700 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	44	3.3
222	38	4.5
362	25	5.4
502	5	7.1
637	9	11.3

Type: Pibal
Time: 1100 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	57	2.9
222	35	4.6
362	10	5.3
502	24	6.3
637	16	6.7
765	28	9.2
893	16	12.0
1021	7	13.1
1149	5	12.1
1277	4	12.6
1405	354	11.1
1533	321	6.2

Type: Pibal
Time: 1500 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	127	0.7
222	356	1.7
362	347	1.3
502	23	1.7
637	357	2.0
765	358	3.2
893	2	4.9
1021	3	7.9
1149	7	8.4
1277	12	9.1
1405	5	11.9
1533	2	14.0

Table C-12a (Continued)

WIDOWS CREEK STEAM PLANT
WIND PROFILE
DECEMBER 14, 1980

Type: Pibal
Time: 1715 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	179	0.6
222	116	1.1
362	102	0.8
502	324	1.4
637	8	2.7
765	29	5.0

Type: Pibal
Time: 1900 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	197	1.5
272	220	1.7
362	232	1.7
502	200	1.3
637	209	0.9
765	68	0.7
893	78	2.7
1021	26	6.5
1149	8	8.2
1277	357	10.8
1405	359	11.5
1533	3	11.4

Type: Pibal
Time: 2300 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	49	3.4
222	57	1.9
362	223	0.4
502	147	1.0
637	122	3.3
765	111	4.8
893	103	4.5
1021	83	3.6
1149	31	3.3
1277	7	5.3
1405	5	5.3
1533	25	4.6

Table C-12b

WIDOWS CREEK STEAM PLANT
WIND PROFILE
DECEMBER 15, 1980

Type: Pibal
Time: 0130 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	54	1.7
222	32	2.3
362	243	0.6
502	155	2.1
637	136	4.2
765	151	5.0
893	149	4.7

Type: Pibal
Time: 0300 CST

Height (m-AGL)	Wind Direction (°)	Wind Speed (m/s)
76	30	1.3
222	33	2.6
362	293	1.3
502	187	3.1
637	172	5.3
765	162	6.4
893	156	6.3
1021	160	6.2
1149	162	5.1
1277	166	5.5
1405	165	6.3
1533	166	6.6